Zebra Z4M™ / Z6M™

Maintenance Manual

Table of Contents

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Table of Contents

Section 1 System Description 1-1

Scope 1-1
RELATED MANUALS 1-1
Printer Specifications 1-2
Options 1-2
Zebra Programming Language II (ZPL II) 1-2
Bar Codes 1-2
Standard Printer Fonts 1-3
Media specifications 1-5
Ribbon Specifications 1-6
Printer Specifications 1-6
General Specifications 1-7
Electrical Requirements 1-7
Environmental Operating Ranges 1-7
Communication Specifications 1-8
Serial Data Communication Interface Overview 1-8
Communication Buffer 1-9
Standard Serial Communication Connector 1-9
Serial Communication Signal Levels 1-10
Communication Code 1-11
Parallel Data Communications Interface Overview 1-11
Parallel Port Connector 1-11
Optional Interface Boards 1-12
DATA Status Indicator: 1-12

Section 2 Operations Overview 2-1

Installation 2-1
Unpack Printer 2-1
Storage and Reship 2-1
Operator Controls 2-2
Front Panel Display 2-2
Front Panel Keys 2-3
Front Panel Lights 2-4
Load Media and Ribbon 2-4
Load Ribbon 2-4

Remove Ribbon 2-5
Load Media 2-5
Tear-Off Mode 2-5
Cutter Mode 2-7
Value Peel-Off Mode 2-8
Value Peel-Off Mode with Liner Take-up 2-10
Remove Liner 2-11
Value Peel Rewind (Peel-off Mode) 2-12
Value Peel Rewind (Rewind Mode) 2-13
Value Peel Rewind Media Alignment 2-15
Power Peel-off Mode 2-15
Liner Removal 2-16
Power Rewind Mode 2-17
Media Removal 2-18
Power Peel Rewind Media Alignment 2-19
Fanfold Media Loading 2-20
Align Sensors 2-22
Transmissive Sensor 2-22
Selecting the Media Sensor 2-22
Media and Media Sensor Considerations 2-23
Auto-Calibrate 2-23
Calibrate Control 2-23
Printer Self Tests 2-24
Cancel Key Self Test 2-24
Pause Key Self Test 2-25
Feed Key Self Test 2-26
Pause and Cancel Key Self Test 2-27
Pause and Feed Key Self Test - Reset Defaults 2-28
Communications Diagnostic Self-Test 2-28

Section 3 Troubleshooting 3-1

General 3-1
Troubleshooting Charts 3-2

Section 4 Preventive and Corrective Maintenance 4-1

Preventive Maintenance 4-1
Tools Required for Preventive Maintenance 4-1

Table of Contents

Equipment Safety Tips 4-2
Equipment Safety Tips (Continued) 4-3
Personal Safety Tips 4-4
Cleaning 4-5
Exterior 4-5
Interior 4-5
Recommended Preventive Maintenance Schedule 4-5
Printhead and Platen Roller 4-6
Cleaning the Sensors 4-7
Cleaning the Value Peel Module 4-7
Clean the Cutter Module 4-8
Lubrication 4-9
Corrective Maintenance 4-10
Tools Required 4-10
Print Mechanism Replacement 4-10
Remove Print Mechanism 4-10
Install the Print Mechanism 4-15
Align the Printhead 4-15
Replace Printhead 4-17
Removing the Printhead 4-17
Installing the Printhead 4-19
Drive System Printhead Changeover from 203 DPI to 300 DPI 4-20
Replace Latch Kit 4-22
Remove Latch 4-22
Install Latch Kit 4-23
Adjust Printhead Mechanism 4-25
Replace Platen Roller 4-26
Remove Platen Roller 4-27
Install Platen Roller 4-28
Replace Main Logic Board 4-30
Remove Main Logic Board 4-30
Install Main Logic Board 4-31
Replace Power Supply Board 4-32
Remove Power Supply Board 4-32
Install Power Supply Board 4-34
Drive Belt Replacement 4-37
Remove Drive Belt 4-37

Install Drive Belt 4-38
Front Panel Replacement 4-38
Remove Front Panel 4-38
Install Front Panel 4-39
Replace Dancer Assembly 4-40
Remove Dancer Assembly 4-40
Installing the Dancer Assembly 4-41
Ribbon/Head Open Sensor Replacement 4-41
Removing the Ribbon/Head Open Sensor Assembly 4-41
Installing the Ribbon/Head Open Sensor Assembly 4-43
(Transmissive) Sensor Replacement 4-44
Remove Transmissive Sensor 4-44
Install Transmissive Sensor 4-46
Replace (Reflective) Media Sensor 4-47
Remove (Reflective) Media Sensor Assembly 4-47
Install Media Sensor Assembly 4-48
Replace Ribbon Take-Up Assembly 4-49
Remove Ribbon Take-Up Assembly 4-49
Install Ribbon Take-Up Assembly 4-49
Replace Ribbon Supply Assembly 4-50
Remove Ribbon Supply Assembly 4-50
Install Ribbon Supply Assembly 4-50
Options 4-51
Install Flash Memory Option 4-51
Install Memory Card (PCMCIA) Interface Option Kit 4-53
Install Cutter Option 4-57
Install Value Peel Option 4-61
Install Liner Take-up Option 4-64
Installing the Value Peel Rewind Option 4-66
Remove Base 4-66
Install Rewind Pan 4-67
Installation of Value Peel Assembly 4-70
Install Power Rewind/Peel Option 4-72
Install the Rewind Pan/Rewind Motor and Spindle 4-72
Installation of Rewind Pan 4-74
Install Peel Assembly 4-77
Maintenance Kits 4-78

Rewind Motor and Spindle Assembly 4-78
Remove Rewind Motor and Spindle Assembly Removal 4-78
Rewind Motor and Spindle Installation 4-80
Rewind PCB Motor Assembly 4-81
Remove Rewind PCB Motor Assembly 4-81
Install PCB Motor Assembly 4-84
Pinch Roller Kit Installation 4-86

Section 5 Maintenance and Assembly Drawings 5-1

General Information 5-1


Zebra

List of Tables

Table 1-1. Font Matrix for 8 dot/mm (203 dpi) Printhead 1-3
Table 1-2. Font Matrix for 12 dot/mm (300 dpi) Printhead 1-4
Table 3-1. Technical Support Telephone Numbers 3-1
Table 4-1. Preventive Maintenance Schedule 4-5
Table 5-1. Main Printer Assemblies 5-2
Table 5-2. Electronics Maintenance Kits 5-4
Table 5-3. (Reflective) Media Sensor Assembly Maintenance Kit 5-5
Table 5-4. Platen Assembly 5-6
Table 5-5. Platen Roller Shaft Maintenance Kit 5-8
Table 5-6. Printhead Housing Maintenance Kit 5-9
Table 5-7. Static Brush Assembly Maintenance Kit 5-10
Table 5-8. Dancer Assembly Maintenance Kit 5-11
Table 5-9. Ribbon Supply Assembly Maintenance Kit 5-12
Table 5-10. Print Mechanism Latch Kit 5-13
Table 5-11. Drive System – Belts/Pulleys 5-14
Table 5-12. Cutter Kit (Option) 5-16
Table 5-13. Value Peel Assembly (Optional) 5-17
Table 5-14. Liner Take-up Assembly (Z4M Only) 5-18
Table 5-15. Power Rewind/Peel (Option) 5-19
Table 5-16. Value Peel Rewind Kit (Released in Fourth Quarter 2001) 5-20
Table 5-17. Miscellaneous Options 5-21


Zebra

List of Figures

Figure 1-1. Default Fonts Examples 1-4
Figure 1-2. Interface Connections 1-8
Figure 1-3. RS-232 Signaling 1-10
Figure 1-4. RS-422/RS-485 Signaling 1-10
Figure 2-1. Location of Control Panel Keys 2-2
Figure 2-2. Ribbon Loading 2-5
Figure 2-3. Media Loading Tear Off Mode 2-6
Figure 2-4. Media Loading Cutter Mode 2-7
Figure 2-5. Media Loading Value Peel 2-9
Figure 2-6. Media Loading Value Peel with Liner Take-up 2-11
Figure 2-7. Value Peel Rewind (Peel-Off Mode) 2-13
Figure 2-8. Value Peel Rewind (Rewind Mode) 2-14
Figure 2-9. Value Peel Rewind Media Adjustment 2-15
Figure 2-10. Power Peel Loading 2-16
Figure 2-11. Power Rewind Loading 2-18
Figure 2-12. Media Alignment (Rewind Shown) 2-19
Figure 2-13. Media Loading Fanfold 2-21
Figure 2-14. CANCEL Key Self Test Label (Configuration Label) 2-25
Figure 2-15. PAUSE Key Self Test Label 2-26
Figure 2-16. FEED Key Self Test Label 2-27
Figure 2-17. PAUSE and CANCEL Key Self Test Label 2-27
Figure 2-18. Communications Diagnostics Self Test 2-29
Figure 4-1. Printhead, Platen Roller and Sensor Cleaning 4-7
Figure 4-2. Cleaning the Value Peel-Off Module 4-8
Figure 4-3. Cutter Module Cleaning 4-9
Figure 4-4. Removal and Installation of the Electronics Cover 4-11
Figure 4-5. Print Mechanism 4-12
Figure 4-6. Printhead Grounding Strap 4-12
Figure 4-7. Back Cover Removal and Installation 4-13
Figure 4-8. Cable Locations and Routing 4-14
Figure 4-9. Print Housing Mounting Screws 4-14
Figure 4-10. Printhead Housing Adjustments 4-15
Figure 4-11. Ribbon/Printhead Open Sensor 4-16
Figure 4-12. Top View of Printhead Mechanism 4-18
Figure 4-13. Printhead Removal/Install 4-18
Figure 4-14. Configuration Label 4-19

Figure 4-15. Remove the Electronics Cover 4-21
Figure 4-16. Changing the Compound Gear and Compound Pulley 4-22
Figure 4-17. Latch Kit Parts 4-23
Figure 4-18. Strike Plate Installation 4-24
Figure 4-19. Adjustment Screw Location 4-24
Figure 4-20. Printhead Housing Adjustments 4-25
Figure 4-21. Print Mechanism Mounting Screws 4-26
Figure 4-22. Platen Roller Assembly (Z4M Shown) 4-27
Figure 4-23. Platen Roller Disassembly 4-28
Figure 4-24. Platen Roller Kit 4-29
Figure 4-25. Removal and Replacement of the Main Logic Board 4-31
Figure 4-26. Main Logic Board Assembly Connection Locations 4-32
Figure 4-27. Removal and Replacement of the Power Supply Board 4-33
Figure 4-28. Power Supply Board Assembly Connection Locations. 4-34
Figure 4-29. Test the Power Supply 4-36
Figure 4-30. Removal of the Drive Belt 4-37
Figure 4-31. Front Panel Installation and Connector Location 4-39
Figure 4-32. Dancer Assembly 4-41
Figure 4-33. Ribbon/Head Open Sensor Assemble and Disassemble 4-42
Figure 4-34. Ribbon/Head Open Connection to Main Logic Board 4-43
Figure 4-35. Ribbon/Printhead Sensor Gap 4-44
Figure 4-36. Transmissive Sensor Assembly Connection 4-45
Figure 4-37. Installing the Transmissive Sensor Assembly 4-45
Figure 4-38. (Reflective) Media Sensor Connection to Main Logic Board 4-47
Figure 4-39. Media Sensor Removal 4-48
Figure 4-40. Ribbon Take-Up Assembly/Disassembly 4-49
Figure 4-41. Ribbon Supply Assembly/Disassembly 4-50
Figure 4-42. Flash Memory Socket Location 4-52
Figure 4-43. Flash Chip Socket 4-52
Figure 4-44. Electronics Cover Removal 4-54
Figure 4-45. Back Cover Mounting Screws 4-55
Figure 4-46. Standoff Mounting Location 4-55
Figure 4-47. Elastomeric Connector and Stud Plate Installation 4-56
Figure 4-48. Boss Location on Elastomeric Connector 4-56
Figure 4-49. Front Cover and Electronics Cover Removal 4-58
Figure 4-50. Mounting Bracket Location and Position 4-59
Figure 4-51. Installing the Cutter Assembly (Z4M Shown) 4-59

List of Figures

Figure 4-52. Cutter Shield and Catch Tray 4-60
Figure 4-53. Cutter Option Connector Location on Main Logic Board 4-61
Figure 4-54. Removal of Front and Latch Cover 4-62
Figure 4-55. Tear Bar Removal 4-62
Figure 4-56. Rear of Value Peel Assembly 4-63
Figure 4-57. Installing and Removing Value Peel Assembly 4-63
Figure 4-58. Contents of Liner Take-up Assembly Kit 4-64
Figure 4-59. Liner Take-up Exploded View 4-64
Figure 4-60. Liner Take-up Motor Harness Installation 4-65
Figure 4-61. Liner Take-up Motor Assembly Installation 4-65
Figure 4-62. Value Peel Rewind Kit Contents 4-66
Figure 4-63. Base Removal 4-67
Figure 4-64. Rewind Motor Location 4-68
Figure 4-65. Main Logic Board Connector 4-69
Figure 4-66. Rewind Motor Assembly Mounting 4-69
Figure 4-67. Tear Bar Removal 4-70
Figure 4-68. Value Peel Installation and Removal 4-71
Figure 4-69. Rear of Value Peel Assembly 4-71
Figure 4-70. Pan Removal 4-73
Figure 4-71. Rewind Pan Installation 4-74
Figure 4-72. Rewind Motor Location 4-75
Figure 4-73. Main Logic Board Connector 4-76
Figure 4-74. Rewind Motor Assembly Mounting 4-76
Figure 4-75. Installing Front Housing Assembly 4-77
Figure 4-76. Main Logic Board Connection 4-79
Figure 4-77. Motor and Spindle Removal and Installation 4-79
Figure 4-78. Cable Location 4-80
Figure 4-79. Rewind Motor Cable Location 4-82
Figure 4-80. Motor & Spindle Removal and Installation 4-82
Figure 4-81. E-Ring Removal and Installation 4-83
Figure 4-82. PC Board Assembly Removal and Installation 4-84
Figure 4-83. PCB Motor Assembly Orientation 4-85
Figure 4-84. Removing and Installing E-Rings and Bearings 4-86
Figure 5-1. Main Printer Assemblies 5-3
Figure 5-2. Electronics Maintenance Kits 5-4
Figure 5-3. (Reflective) Media Sensor Assembly Maintenance Kit 5-5
Figure 5-4. Platen Assembly 5-7

Figure 5-5. Platen Roller Shaft Maintenance Kit 5-8
Figure 5-6. Printhead Housing Maintenance Kit 5-9
Figure 5-7. Static Brush Assembly Maintenance Kit 5-10
Figure 5-8. Dancer Assembly Maintenance Kit 5-11
Figure 5-9. Ribbon Supply Maintenance Kit 5-12
Figure 5-10. Print Mechanism Latch Kit 5-13
Figure 5-11. Drive System – Belts/Pulleys 5-15
Figure 5-12. Cutter Kit (Optional) 5-16
Figure 5-13. Value Peel Assembly 5-17
Figure 5-14. Liner Take-up Assembly (Z4M Only) 5-18
Figure 5-15. Power Rewind/Peel Option 5-19
Figure 5-16. Value Peel Rewind Kit 5-20
Figure 5-17. Miscellaneous Options 5-21

Section 1
System Description

This manual contains information about the service and maintenance of Zebra's *Z*4M™ and *Z*6M™ printers. The *Z*4M/*Z*6M thermal demand printers print high quality labels containing bar codes, alphanumeric characters and graphics. Capable of printing in either thermal direct or thermal transfer mode, configured with a wide range of field installable options, the printers have the flexibility to meet a variety of applications. As with other printer models within the Zebra family, the *Z*4M/*Z*6M use Zebra Programming Language II (ZPL II®).

Scope

This manual contains the information necessary for the proper maintenance of the Z4M/ Z6M printers.

Section 1**, System Description,** provides an overview of the printer. Included are specifications of the printer and a brief explanation of each component and its function.

Section 2**, Operations Overview**, will assist the technician with "out of the box" installation, initial setup and printer operation.

Section 3**, Troubleshooting**, contains troubleshooting tables showing symptom, diagnosis and action columns. Working with these tables, the technician will be able to diagnose printer faults and determine the needed repair.

Section 4**, Preventive and Corrective Maintenance**, provides various levels of printer maintenance required for optimum performance. This section also provides information on cleaning and general maintenance, replacement of major assemblies and modules and mechanical adjustments.

Section 5**, Maintenance and Assembly Drawings**, contains mechanical assembly drawings and parts lists. Parts and assemblies common to *Z*4M/*Z*6M are illustrated along with their maintenance part numbers.

RELATED MANUALS

A further description of the printer models may be found in the *Z*4M/*Z*6M User's Guide (PN 11356L). More information on ZPL II programming language can be found in the ZPL II Programming Guide Volume 1: Command Reference (PN 45541L), ZPL II Programming Guide Volume 2: (PN 45542L) and the ZebraNet® Networking: Print Server II™ Operations Guide (PN 45537L).

This section of the manual is intended to supplement the printer's User's Guide by providing additional information to aid the service technician in troubleshooting and maintaining the printer.

Printer Specifications

A general description of the printer and the options available follows.

Options

- Cutter
- Cutter tray
- Memory cards
- Bar-One® Windows™-based WYSIWYG on-screen label design and print application software
- RS-485 interface
- Printer drivers for Windows operating systems
- Value Peel
- Value Peel Liner Take-up (Only available on *Z*4M with Value Peel)
- Value Peel Rewind
- ZebraNet PrintServer II, including Ethernet interface (10Base-T), WebView graphical setup and printer control, and Alert unsolicited error notification
- Font cards
- Downloadable Fonts

Zebra Programming Language II (ZPL II)

- Downloadable graphics, scalable and bitmap fonts, and label formats
- Object copying between memory areas (RAM, memory card, and internal FLASH)
- Code Page 850 character set
- Adjustable print cache
- Data compression
- Automatic virtual input buffer management
- Automatic memory allocation
- Format inversion
- Mirror image printing
- Four-position field rotation (0º, 90º, 180º, and 270º)
- Controlled via mainframe, mini-computer, PC, portable data terminal
- Programmable quantity with print, pause, and cut control
- Serialized fields
- Error-checking protocol
- User-programmable password
- Slew command
- Communicates in printable ASCII characters
- In-spec OCR-A and OCR-B
- UPC/EAN
- Status message to host upon request

Bar Codes

- Bar code ratios - 2:1, 7:3, 5:2, & 3:1
- Codabar (supports ratios of 2:1 up to 3:1)
- CODABLOCK
- Code 11
- Code 39 (supports ratios of 2:1 up to 3:1)
- Code 49 (2-dimensional bar code)
- Code 93
- Code 128 (with subsets A, B, and C and UCC case C codes)
- Data Matrix
- EAN-8, EAN-13, EAN extensions
- Interleaved 2 of 5 (supports ratios of 2:1 up to 3:1, Modulus 10 Check Digit)
- ISBT-128
- LOGMARS
- MaxiCode
- Micro PDF
- MSI
- PDF-417 (2-dimensional bar code)
- Plessey
- POSTNET
- QR-Code
- Standard 2 of 5
- UPC-A, UPC-E, UPC extensions
- Check digit calculation where applicable
- Industrial 2 of 5

Standard Printer Fonts

Fonts A, B, C,D,E,F,G,H, and GS are expandable up to 10 times, height and width independently. However, fonts E and H (OCR-A and OCR-B) are not considered “in-spec" when expanded.

The scalable smooth font 0 (CG Triumvirate™ Bold Condensed) is expandable on a dot-by-dot basis, height and width independent, while maintaining smooth edges. Maximum character size depends on available memory.

IBM Code Page 850 international character sets are available in the fonts A, B, C, D, E, F, G, and 0 through software control.

Table 1-1. Font Matrix for 8 dot/mm (203 dpi) Printhead

Font	Matrix					Type*	Character Size					
							Inches			Millimeters		
	Height	Width	Baseline Dots	Inter-Character Gap	Cell Width	Font Matrix	Height	Width	Char/ Inch	Height	Width	Char/ mm
A	9	5	7	1	6	U-L-D	0.044	0.030	33.87	1.13	0.75	1.33
B	11	7	11	2	9	U	0.054	0.044	22.58	1.38	1.13	0.89
C,D	18	10	14	2	12	U-L-D	0.089	0.059	16.93	2.25	1.50	0.67
E	28	15	23	5	20	OCR-B	0.138	0.098	10.16	3.50	2.50	0.40
F	26	13	21	3	16	U-L-D	0.128	0.079	12.70	3.25	2.00	0.50
G	60	40	48	8	48	U-L-D	0.295	0.236	4.23	7.50	6.00	0.17
H	21	13	21	6	19	OCR-A	0.103	0.094	10.69	2.63	2.38	0.42
GS	24	24	24	2	26	SYMBOL	0.118	0.128	7.82	3.00	3.25	0.31
P	20	18	N/A	N/A	N/A	U-L-D	0.098	0.089	N/A	2.50	2.25	N/A
Q	28	24	N/A	N/A	N/A	U-L-D	0.138	0.118	N/A	3.50	3.00	N/A
R	35	31	N/A	N/A	N/A	U-L-D	0.172	0.153	N/A	4.38	3.88	N/A
S	40	35	N/A	N/A	N/A	U-L-D	0.197	0.172	N/A	5.00	4.38	N/A
T	48	42	N/A	N/A	N/A	U-L-D	0.236	0.207	N/A	6.00	5.25	N/A
U	59	53	N/A	N/A	N/A	U-L-D	0.290	0.261	N/A	7.38	6.63	N/A
V	80	71	N/A	N/A	N/A	U-L-D	0.394	0.349	N/A	10.00	8.88	N/A

*U = Uppercase, L = Lowercase, D = Descenders

Table 1-2. Font Matrix for 12 dot/mm (300 dpi) Printhead

Font	Matrix					Type*	Character Size					
							Inches			Millimeters		
	Height	Width	Baseline Dots	Inter-Character Gap	Cell Width	Font Matrix	Height	Width	Char/ Inch	Height	Width	Char/ mm
A	9	5	7	1	6	U-L-D	0.030	0.020	50.00	0.76	0.51	1.97
B	11	7	11	2	9	U	0.037	0.030	33.33	0.93	0.76	1.31
C,D	18	10	14	2	12	U-L-D	0.060	0.040	25.00	1.52	1.02	0.98
E	41	20	32	6	26	OCR-B	0.137	0.087	11.54	3.47	2.20	0.45
F	26	13	21	3	16	U-L-D	0.087	0.053	18.75	2.20	1.35	0.74
G	60	40	48	8	48	U-L-D	0.200	0.160	6.25	5.08	4.06	0.25
H	30	19	30	9	28	OCR-A	0.100	0.093	10.71	2.54	2.37	0.42
GS	24	24	24	2	26	SYMBOL	0.080	0.087	11.54	2.03	2.20	0.45
P	20	18	N/A	N/A	N/A	U-L-D	0.067	0.060	N/A	1.69	1.52	N/A
Q	28	24	N/A	N/A	N/A	U-L-D	0.093	0.080	N/A	2.37	2.03	N/A
R	35	31	N/A	N/A	N/A	U-L-D	0.117	0.103	N/A	2.96	2.62	N/A
S	40	35	N/A	N/A	N/A	U-L-D	0.133	0.117	N/A	3.39	2.96	N/A
T	48	42	N/A	N/A	N/A	U-L-D	0.160	0.140	N/A	4.06	3.56	N/A
U	59	53	N/A	N/A	N/A	U-L-D	0.197	0.177	N/A	5.00	4.49	N/A
V	80	71	N/A	N/A	N/A	U-L-D	0.267	0.237	N/A	6.77	6.01	N/A

*U = Uppercase, L = Lowercase, D = Descenders

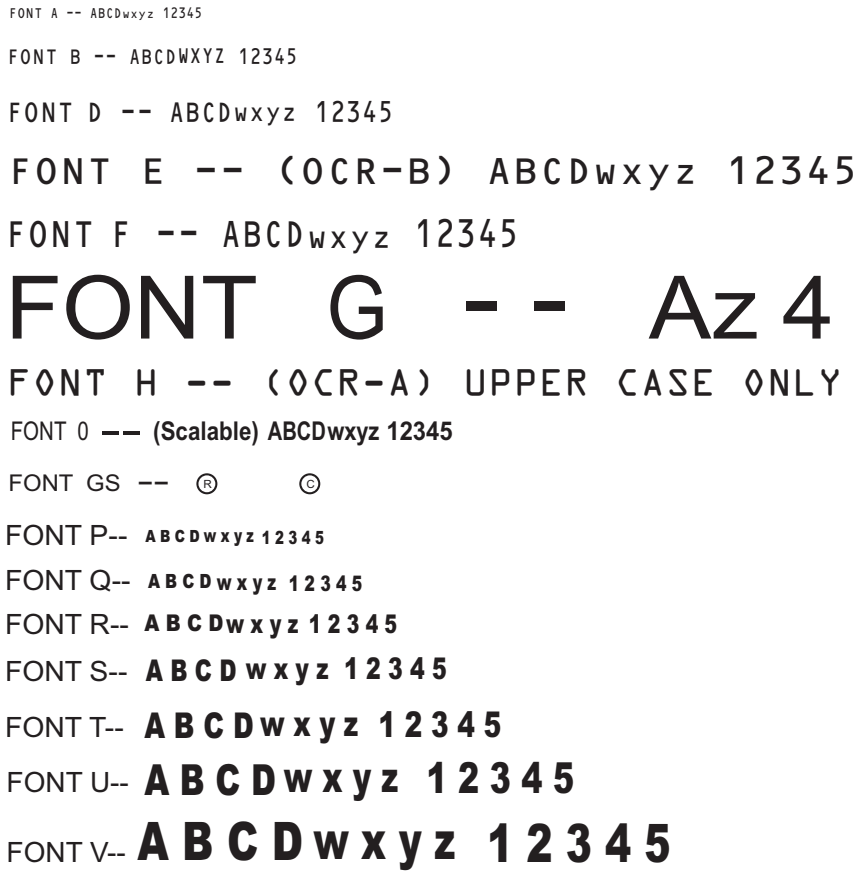


Figure 1-1. Default Fonts Examples

Media specifications

Media Specifications			*Z*4M	Z6M
Minimum label length		Tear-off	0.5″ (13 mm)	0.5″ (13 mm)
		Peel-off	1″ (25.4 mm)	1″ (25.4 mm)
		Cutter	1″ (25.4 mm)	1″ (25.4 mm)
		Rewind	0.5″ (13 mm)	0.5″ (13 mm)
Maximum			39″ (991 mm)	39""(991 mm) (203dpi)
				2″ (737 mm) (300dpi)
Total media width (Includes liner, if any)	Minimum		1″ (25.4 mm)	2″ (51 mm)
	Maximum	Tear/Cutter	4.5″ (114 mm)	7""' (178 mm)
		Peel/ Rewind	4.25″ (108 mm)	6.75″ (171 mm)
Total thickness (includes liner, if any)		Minimum	0.0023″ (0.058 mm)	0.0023″ (0.058 mm)
		Maximum	0.010″ (0.25 mm)	0.010″ (0.25 mm)
Cutter maximum full-width media thickness			0.010″ (0.25 mm)	0.010″ (0.25 mm)
Roll media core inside diameter			3″ (76 mm)	3″ (76 mm)
Maximum roll diameter			8.0″ (203 mm)	8.0″ (203 mm)
Maximum fan-fold pack size			8″ L × 4.5" W × 6.2" H	8″ L × 7" W × 6.2" H
Inter-label gap		Minimum	0.079″ (2 mm)	0.079″ (2 mm)
		Preferred	0.118″ (3 mm)	0.118″ (3 mm)
		Maximum	0.157″ (4 mm)	0.157″ (4 mm)
Ticket/tag sensing notch W × L			0.25″ × 0.12″ (6 mm × 3 mm)	0.25″ × 0.12" (6 mm × 3 mm)
Ticket/tag sensing hole diameter			0.125″ (3mm)	0.125″ (3mm)
Additional specs. for black mark sensing	Mark length (measuring parallel	Minimum	0.098″ (2.5 mm)	0.098″ (2.5 mm)
		Maximum	0.453″ (11.5 mm)	0.453″ (11.5 mm)
	Mark width (measuring perpendicular to label/ tag edge)		≥ 0.37″ (≥ 9.5 mm)	≥ 0.37″ (≥ 9.5 mm)
	Mark location		Within 0.040″ (1 mm) of inside media edge	Within 0.040″ (1 mm) of inside media edge
	Mark density		> 1.0 Optical Density Units (ODU)	> 1.0 Optical Density Units (ODU)
	Maximum density of the back of the media on which the black mark is printed		0.5 ODU	0.5 ODU

* Media registration and minimum label length are affected by media type and width, ribbon type, print speed, and printer mode of operation. Performance improves as these factors are optimized. Zebra recommends always qualifying any application with thorough testing.

Ribbon Specifications

Ribbon Specifications		*Z*4M		*Z*6M	
Ribbon Width (To protect the printhead from wear, Zebra recommends using ribbon at least as wide as the media you are using.)	Minimum	2″	51 mm	2″	51 mm
	Maximum	4.3″	109 mm	6.85″	174 mm
Standard lengths	2:1 media to ribbon roll ratio	984′	300 m	984′	300 m
	3:1 media to ribbon roll ratio	1476′	450 m	1476′	450 m
Maximum ribbon roll size (outer diameter)		3.2″	(81.3 mm)	3.2″	(81.3 mm)
Inner diameter of core		1″	25.4 mm	1″	25.4 mm
Ribbon must be wound with the coated side out.					

Printer Specifications

Printing Specifications		*Z*4M		*Z*6M	
Resolution		203 dots/inch 8 dots/mm	300 dots/inch 12 dots/mm	203 dots/inch 8 dots/mm	300 dots/inch 12 dots/mm
Dot size (square)		0.0049″ × 0.0049″ 0.125 × 0.125 mm	0.0033″ × 0.0039″ 0.084 × 0.99 mm	0.0049″ × 0.0049″ 0.125 × 0.125 mm	0.0033″ × 0.0039″ 0.084 × 0.99 mm
First dot location		0.10″ ± 0.035″ 2.5 mm ±.89 mm	0.12″ ± 0.035″ 3 mm ±.89 mm	0.10″ ± 0.035″ 2.5 mm ±.89 mm	0.12″ ± 0.035″ 3 mm ±.89 mm
Max print width		4.1″	104 mm	6.6"	168 mm
Minimum print length		1 dot row			
Print length (max)	203 dpi	105″	2667 mm	65″	1651 mm
	300 dpi	49″	1245 mm	29"	737 mm
Bar code modulus (“X”) dimension	203 dpi Picket Fence and Ladder	4.9 mil to 49 mil			
	300 dpi Picket Fence	3.3 mil to 33mil			
	300 dpi Ladder	3.9 mil to 39 mil			
Programmable constant print speeds	203 and 300 dpi	Per second: 2″, 3″, 4″, 5″, 6″		Per second: 51 mm, 76 mm, 102 mm, 127 mm, 152 mm	
	Add'l. 203 dpi	Per second: 7″, 8″, 9″, 10″		Per second: 178 mm, 203 mm, 229 mm, 254 mm	
Thin film printhead with Element Energy Equalizer					

General Specifications

Physical Characteristics	*Z*4M		*Z*6M	
Height	13.32"	338 mm	13.32"	338 mm
Width	10.93"	278 mm	13.43"	341 mm
Depth	18.69"	475 mm	18.69"	475 mm
Weight (without options)	32.4 lbs.	15 kg	34.7 lbs.	16 kg

Electrical Requirements

- Autoselect 90-264 VAC; 48-62 Hz
- 5 Amps for entire AC voltage range
- 2 5 Watts standby power consumption
- 200/300/350/450 Watts maximum power consumption for *Z*4M/*Z*6M. (printing 100% black at 6 ips)
- UL 1950 Listed - Certified to CAN/CSA-C22.2 No. 950-M89 and IEC 950
- Complies with CISPR22B and with FCC and Canadian DOC class “A” rules
- Carries the CE mark of compliance

Environmental Operating Ranges

Temperature	Operating Thermal Transfer: +40°F to +104°F (+5°C to +40°C) Direct Thermal: +32°F to +104°F (0°C to +40°C)	
	Storage	-40°F to +140°F (-40°C to +60°C)
Non-condensing relative humidity	Operating	20% to 85%
	Storage	5% to 85%

Communication Specifications

Serial Data Communication Interface Overview

The Zebra Z4M/Z6M has a single data terminal equipment (DTE) port that supports RS-232, RS-422 and RS-485 serial data communications. Baud rate, parity, data length, stop bits, and XON/XOFF or DTR control protocols are front panel selectable. Refer to Figure 1-2. A 25-pin DB25S connector at the rear of the printer provides the data and control leads necessary to communicate through all three signaling methods. The method used is specific to the application of the printer.

For all RS-232 data and control input and output signals, the Zebra Z4M/Z6M follows both the Electronic Industries Association's (EIA) RS-232 and the Consultative Committee for International Telegraph and Telephone (CCITT) V.24 specifications.

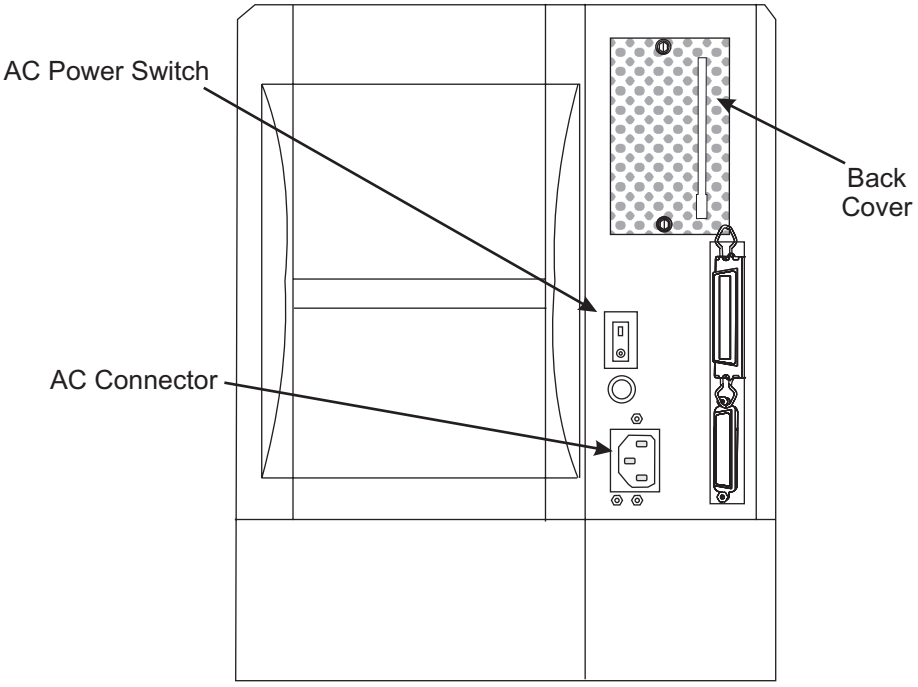


Figure 1-2. Interface Connections

Communication Buffer

The Z4M/Z6M printers have a communication buffer that stores the incoming data until that information can be acted upon (imaged). Communication handshaking (DTR/DSR control signals or XON/XOFF control codes) is used to control when the host can send data to the printer.

The size of the buffer is 5000 characters. As data is received by the printer, the processor monitors the number of characters in the buffer. If the buffer is filled beyond 4744 characters, the printer will turn the DTR control lead to the OFF condition (negative voltage) or transmit an XOFF (DC-3) control character to the host. When the buffer empties below 4250 characters, the printer will turn DTR to the ON condition (positive voltage) or transmit an XON (DC-1) control character to the host.

Standard Serial Communication Connector

The DTE port is a DB25S connector located at the rear of the Z4M/Z6M printers. It provides connection to a host via RS-232, RS-422 or RS-485 signaling. Refer to Figure 1-2 for wiring diagrams.

The pin outs and signal descriptions for the DTE port are as follows:

Pin 1—FG (Frame ground) for cable shield.

Pin 2—TXD (RS-232 Transmit Data): Output from printer

Pin 3—RXD (RS-232 Receive Data): Input to printer

Pin 4—RTS (RS-232 Request to Send): Output from printer

Pin 6—DSR (RS-232 Data Set Ready): Input to printer

Pin 7—SG (Signal ground) for RS-232

Pin 9—+5VDC source (1 Amp maximum)

Pin 11—SGR (Signal ground reference) RS-422/RS-485

Pin 13—Data input B(-) RS-422/RS-485

Pin 14—Data output B(-) RS-422/RS-485

Pin 16—Data input A(+) RS-422/RS-485

Pin 19—Data output A(+) RS-422/RS-485

Pin 20—DTR (RS-232 Data Terminal Ready)

Note • Pins 5, 8, 10, 12, 15, 17-18 and 21-25 are not used and are not terminated.

Serial Communication Signal Levels

Refer to Figure 1-3. RS-232 data signals are defined as either Mark or Space, while control signals are ON (Active-Positive Voltage) or OFF (Inactive-Negative Voltage). Although the permitted voltage levels can range from ±3VDC to ±25VDC, the levels for the Z4M/Z6M printer are as follows:

RS-232 Transmit and Receive Data

Mark or OFF = -7 to -10 VDC Space or ON = +7 to +10 VDC

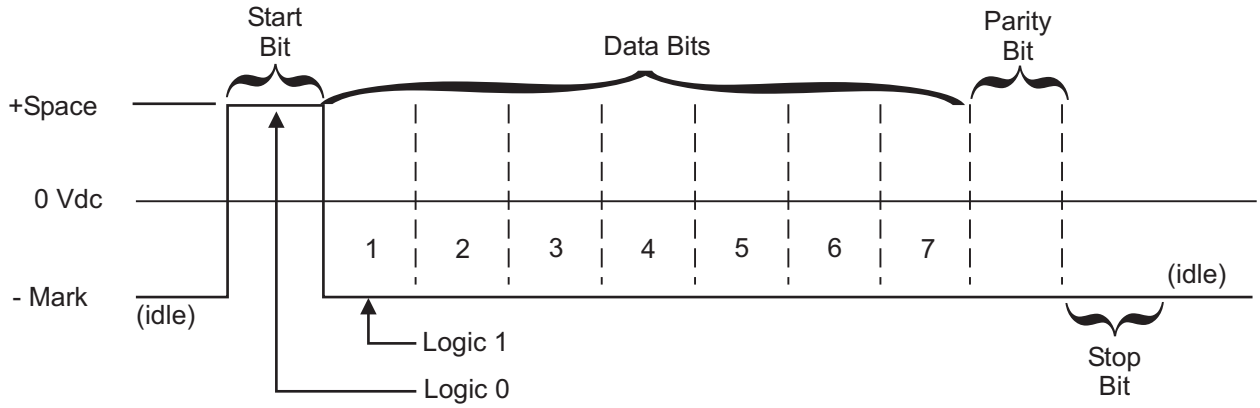


Figure 1-3. RS-232 Signaling

Refer to Figure 1-4. RS-422 and RS-485 data signals are also either Mark or Space. The voltage levels are +5 VDC and 0 VDC when monitored from a specified reference point. The levels for the Z4M and Z6M printer, when referenced to signal ground are:

RS-422 and RS-485 Transmit and Receive Data

Mark Output/Input A = +5V and Output/Input B = 0VSpace Output/Input A = 0V and Output/Input B = +5V

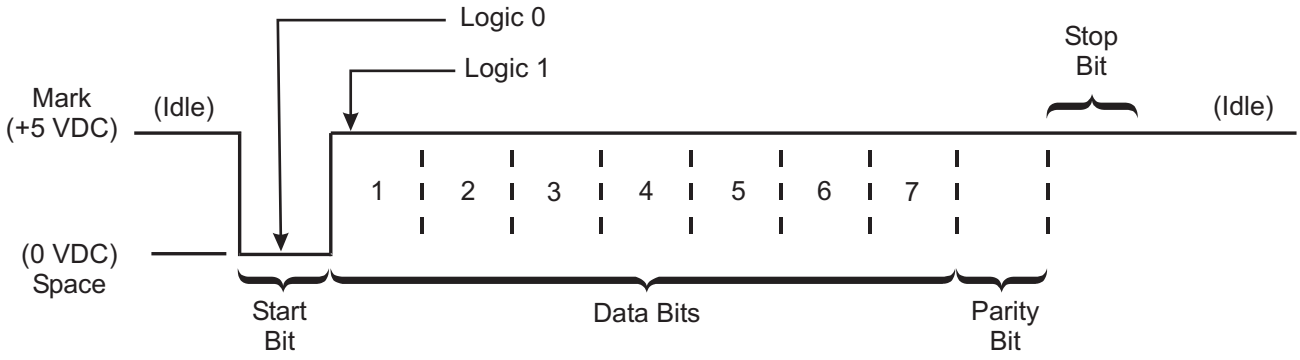


Figure 1-4. RS-422/RS-485 Signaling

Communication Code

The Z4M/Z6M printer sends and receives ASCII (American Standard Code for Information Interchange) characters in one of two formats, Serial Data or Parallel Data.

Note • When using the serial data format, the baud rate, number of data and stop bits per character, and parity are selectable. Parity only applies to data transmitted by the printer. For received data, the parity bit is ignored.

Parallel Data Communications Interface Overview

A standard 36-pin parallel connector is available at the rear of the printer for connection to the data source. Under normal circumstances, data sent from the printer to the host in response to a “Printer Status Request” command is sent through the RS-232 serial port. However, if the host has a properly configured IEEE-1284 parallel port that is recognized by the printer, status information will be returned through the parallel port. Port selection for status information is determined each time the printer is turned on.

Parallel Port Connector

The following table shows the pin configuration and function of a standard PC-to-Printer Centronics® Parallel cable.

Note • Optional Ethernet Networking Communications via ZebraNet PrintServer II. Refer to the ZebraNet Networking: PrintServer II Operating Guide (45537L) when using this communications option.

36-pin Connector	Description
1	nStrobe/HostClk
2-9	Data Bits 1-8
10	nACK/PtrClk
11	Busy/PtrBusy
12	PError/ACKDataReq
13	Select/Xflag
14	nAutoFd/HostBusy
15	Not Used
16 & 17	Ground
18	+5V @ 1A
19-30	Ground
31	ninit
32	nFault/NDataAvail
33 & 34	Not Used
35	+5V through a 4.7 KW Resistor
36	NSelectIn/1284 active

Optional Interface Boards

For information about the IBM® plug-compatible Twinax Interface, the IBM plug-compatible Coax Interface, the RS-485 network interface, refer to the instructions that accompany the interface option kits.

DATA Status Indicator:

ON indicates that data processing or printing is taking place, but no data is being received. OFF indicates that no data is being received or processed. FLASHING indicates that data is being received. (Flashing slows down when the printer is unable to accept any more data due to the data input buffer being full. Flashing returns to normal rate when the data input buffer is no longer full and data is again being received.)

Section 2
Operations Overview

Installation

Following is a detailed description of the installation procedures for the printer.

Unpack Printer

Save the carton and all packing materials in case shipping is ever required. Inspect the printer for possible damage incurred during shipment.

Check all exterior surfaces for damage.

Raise the media access door and inspect the media compartment for damage to components.

If you discover shipping damage:

Immediately notify the shipping company of the damage. Retain the carton and all packaging material for shipping company inspection. File a damage report with the shipping company and notify your local Zebra distributor of the damage.

Zebra Technologies is not responsible for any damage incurred during shipment of the printer and will not cover the repair of this damage under its warranty policy. Any damage claim should be filed with the shipping company.

Storage and Reship

If you are not placing the Z4M or Z6M printer into operation immediately, repackage it using the original packing materials. The printer may be stored under the following conditions:

- Temperature: -40º to 140º F (-40º TO 60º C)
- Relative humidity: 5% to 85% non-condensing.

To ship the printer, remove all ribbon and media from the supply and take-up spindles to prevent damage to the printer. Carefully pack the printer in a suitable container to avoid damage during transit. Whenever possible, use the original container from the factory. If the original one is lost or destroyed, a shipping container can be purchased from Zebra Technologies Corporation.

If you use a different container, package the printer carefully to avoid damage.

Note • When packaging the printer in a rigid container, use shock mounts or shock-absorbing packing material.

Operator Controls

This section discusses the functions of the various controls and indicators on the printer. The operator should become familiar with each of these functions.

Front Panel Display

The front panel display communicates operational and programming modes and parameters.

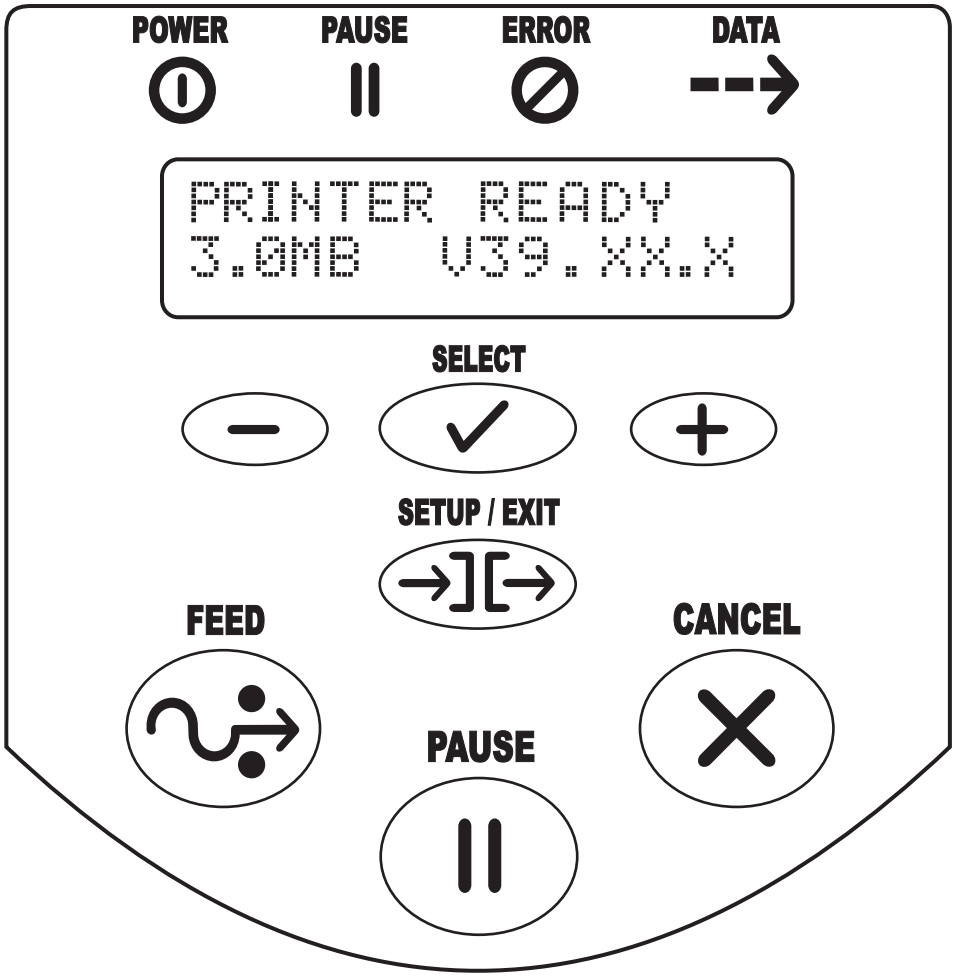


Figure 2-1. Location of Control Panel Keys

Front Panel Keys

Key	Function
FEED 	Forces the printer to feed one blank label each time the key is pressed. • Printer not printing: one blank label immediately feeds. • Printing: one blank label feeds after the current batch of labels is complete.

Note • Equivalent to the Slew to Home Position (~PH, ^PH) ZPL II instruction.

PAUSE 	Stops and starts the printing process. Printer not printing: no printing can occur. Printing: printing stops once the current label is complete. Press to remove error messages from the display.

Note • Pause Mode can also be activated via ZPL II (~PP, ^PP).

CANCEL 	In pause mode cancels print jobs. Printer not printing: the next stored label format is canceled. Printing: the label format currently printing is canceled. Press and hold for several seconds to cancel all print jobs in the printer's memory.
SETUP / EXIT 	Enters and exits the configuration mode.
SELECT 	Toggles increment (+) and decrement (-) between scroll and change. Press once to increment (+) and decrement (-) value of the selection. Press again to increment (+) and decrement (-) to scroll through the menu items.
 Scroll Mode	Scrolls to the next selection.
 Change Mode	Increases value. Answers yes. Prints a label (when applicable).

 Scroll Mode	Scrolls to the previous selection.
 Change Mode	Decreases the value. Selects the digit you wish to change. Answers no.

Front Panel Lights

Light	Status	Indication
POWER 	Off	Printer turned off or no power is applied.
	On	Power applied and turned on.
PAUSE 	Off	Normal printer operation.
	On	Printer stopped all printing operations
	Flashing	In peel-off mode, the PAUSE light flashes when the label is available for removal. In all modes, flashes when initializing FLASH or PCMCIA memory.
ERROR 	Off	Normal printer operation (no errors).
	Slow flashing	“RIBBON IN” warning, “HEAD UNDER TEMP” warning, or “HEAD OVER TEMP” error
	Fast flashing	“HEAD OPEN” error
	On	“PAPER OUT,” “RIBBON OUT,” or “CUTTER JAM” errors
DATA 	Off	Normal printer operation (no data being received or processed).
	One flash	The CANCEL key is pressed and a format is successfully canceled.
	Slow flashing	The printer is unable to accept more data from the host.
	Fast flashing	The printer is receiving data.
	On	A complete format has been received and there has been no subsequent data activity.

Load Media and Ribbon

Load Ribbon

Note • The ribbon supply spindle in your printer is a "dual tension" variety. Most applications require the spindle to be in the "normal" position. The "low tension" position is recommended only when wide ribbon is used and normal tension hampers the ribbon movement.

To place this spindle in the "normal" position, firmly pull out the spindle end segment (plastic part only) until it clicks into place as shown in Figure 2-2. To place the spindle in the "low tension" position, firmly push in the spindle end segment until it clicks into place.

Refer to Figure 2-2.

1. Press the printhead open lever. The printhead assembly springs up.
2. Push the ribbon roll completely onto the ribbon supply spindle.
3. Pull the end of the ribbon over the ribbon sensor, under the printhead assembly, and out the front of the printer.
4. Close the printhead assembly, keeping the ribbon snug and free of wrinkles and in line with the guide mark near the left edge of the ribbon guide plate.
5. Wind the ribbon clockwise onto the ribbon take-up spindle.

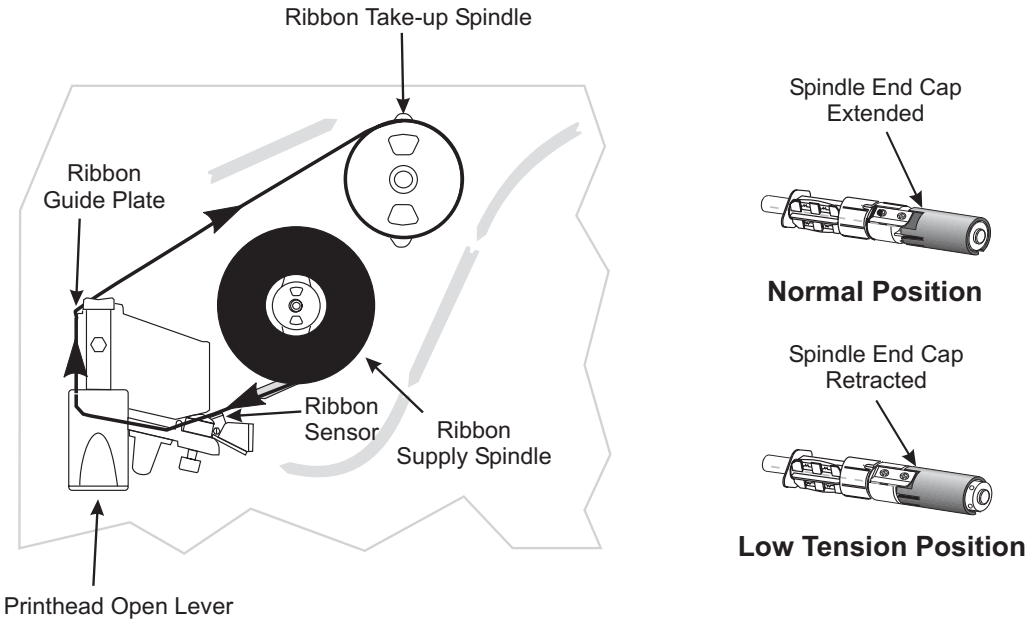


Figure 2-2. Ribbon Loading

Remove Ribbon

1. Break the ribbon between the ribbon guide plate and the ribbon take-up spindle.
2. While turning the ribbon take-up spindle release knob counterclockwise, squeeze the ribbon against the ribbon take-up spindle tension blades.
3. When the tension blades collapse into the ribbon take-up spindle, hold the release knob and rotate the used ribbon toward the rear of the printer. Then, slide off the ribbon.

Load Media

Tear-Off Mode

Refer to Figure 2-3.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.

3. Slide out the media guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, under the ribbon sensor, and out the front of the printer.
7. Ensure that the media is against the back of the transmissive sensor. Slide in the media guide so that it just touches, but does not restrict, the edge of the media.
8. Close the printhead assembly.

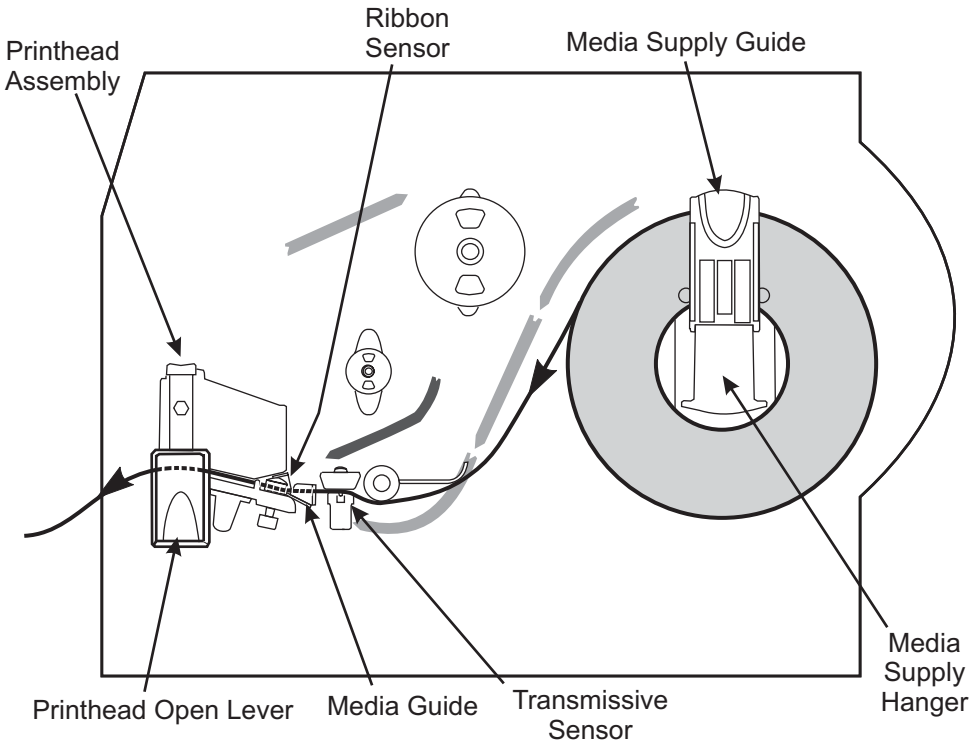


Figure 2-3. Media Loading Tear Off Mode

Cutter Mode

(Cutter option required)

Refer to Figure 2-4.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide the media guide out as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, under the ribbon sensor, and through the cutter module.
7. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
8. Close the printhead assembly.

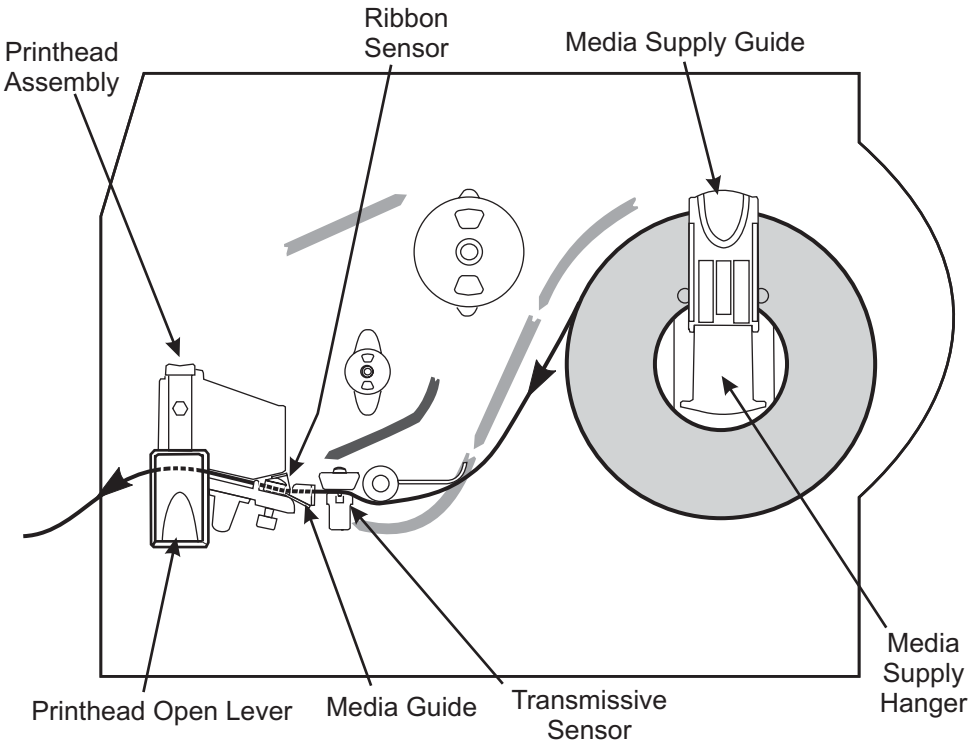


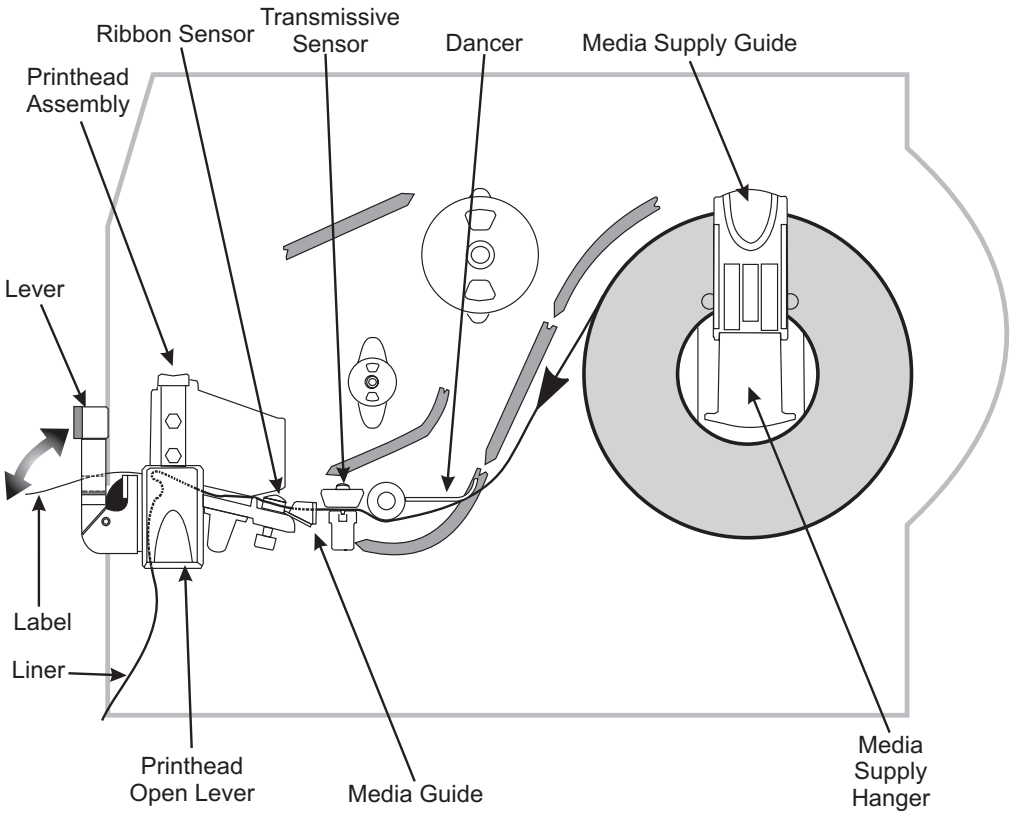
Figure 2-4. Media Loading Cutter Mode

Value Peel-Off Mode

(Value peel option required)

Refer to Figure 2-5.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 6” (305 mm) of media through the front of the printer.
8. Ensure that the media is against the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the roll.
9. Pull lever to open the pivot bracket assembly.
10. Feed the media through the slot in the peel assembly.
11. Close the printhead assembly.
12. Close the pivot bracket assembly.
13. Peeling will automatically start. Press the FEED key to test.



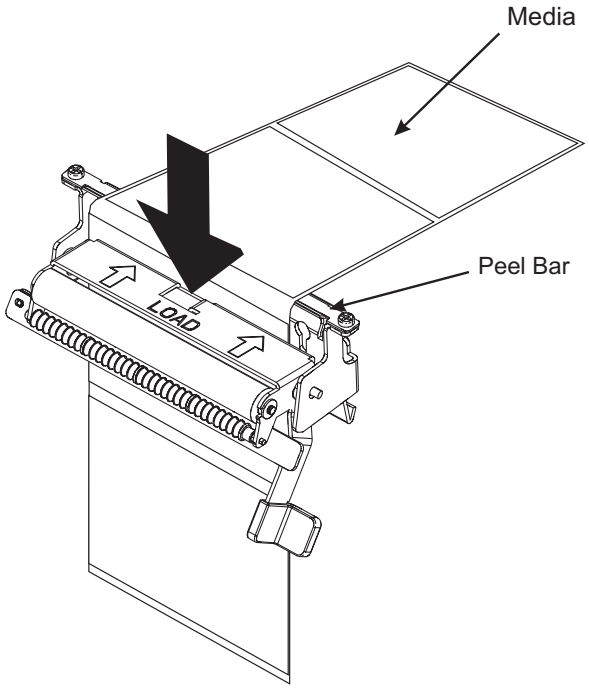


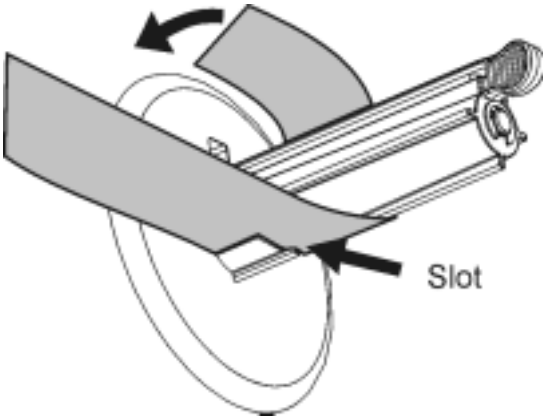
Figure 2-5. Media Loading Value Peel

Value Peel-Off Mode with Liner Take-up

Note • Liner Take-up only available on Z4M.

Refer to Figure 2-5.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 18” (500 mm) of media through the front of the printer.
8. Remove the labels from the 18” of media so that only the liner remains.
9. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
10. Pull down the lever to open the pivot bracket assembly on the peel assembly.
11. Feed the media over the tear-off/peel-off bar and behind the pivot bracket assembly.
12. Close the printhead assembly.
13. Close the pivot bracket assembly.
14. Slide the liner into the slot in the spindle (as shown). Make sure the liner is resting against the back plate of the spindle assembly.
15. Turn the spindle assembly counter-clockwise a few times so that the liner is snug.
16. Peeling will automatically start. Press the FEED key to test.



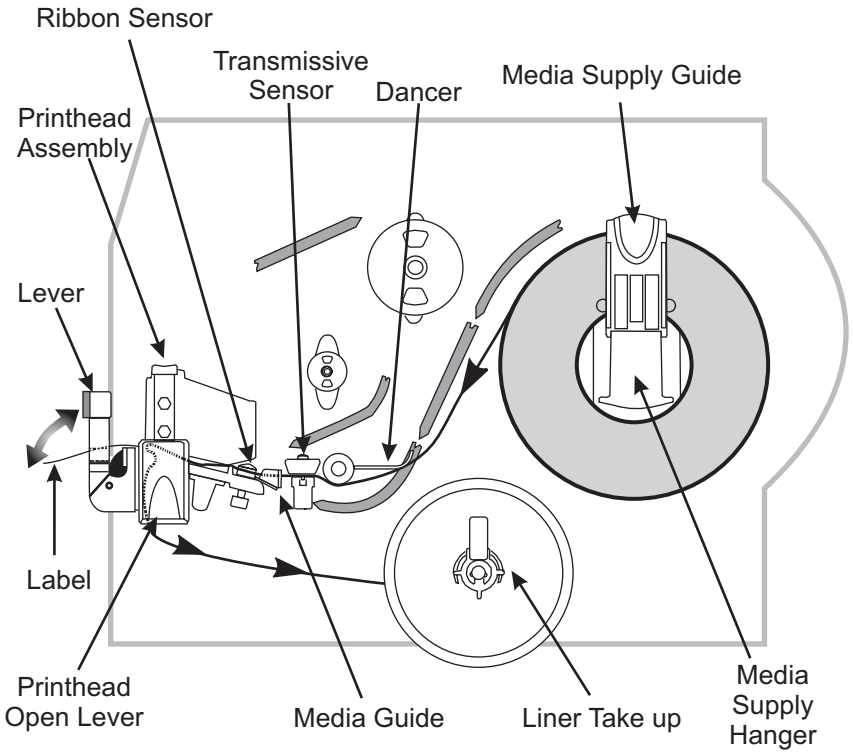
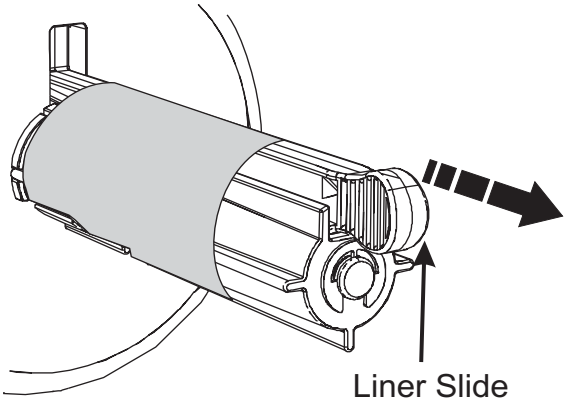


Figure 2-6. Media Loading Value Peel with Liner Take-up

Remove Liner

1. Using the liner slide tab, pull the liner slide towards you (as shown) until it stops (about a third of the way down the liner take-up spindle).
2. Slide the liner from the take-up spindle.



Note • The liner slide should move smoothly back into place once the liner has been removed.

Value Peel Rewind (Peel-off Mode)

Note • Value peel option is replacing the power peel option.

Refer to Figure 2-7

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 36” (1 m) of media through the front of the printer
8. Remove the labels from about 18” of media so that only the liner remains.
9. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
10. Pull down the lever to open the pivot bracket assembly on the peel assembly.
11. Feed the media over the tear-off/peel-off bar and behind the pivot bracket assembly.
12. Close the printhead assembly.
13. Close the pivot bracket assembly.
14. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
15. Wrap the liner around a core placed on the take-up spindle; then, turn the take-up spindle counterclockwise to wind up the excess liner material.
16. Slide the rewind media guide against the liner material and tighten the thumbscrew to lock it into position.
17. Peeling will automatically start. Press the FEED key to test.

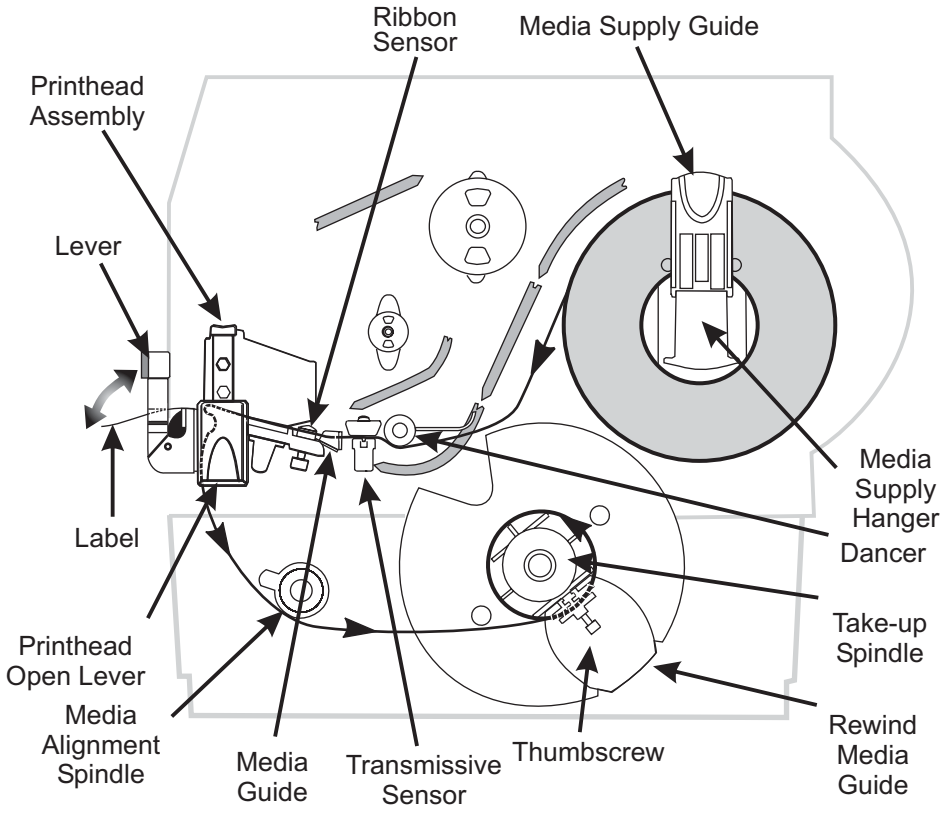


Figure 2-7. Value Peel Rewind (Peel-Off Mode)

Value Peel Rewind (Rewind Mode)

Refer to Figure 2-8.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 36” (1 m) of media through the front of the printer
8. Remove the labels from about 18” of media so that only the liner remains.
9. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
10. Feed the media over the value peel assembly, through the rewind base
11. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
12. Wrap the media around a core placed on the take-up spindle; then turn the take-up spindle counterclockwise to wind up the excess material.

13. Slide the rewind media guide against the media, and tighten the thumbscrew to lock it into position.
14. Close the printhead assembly.

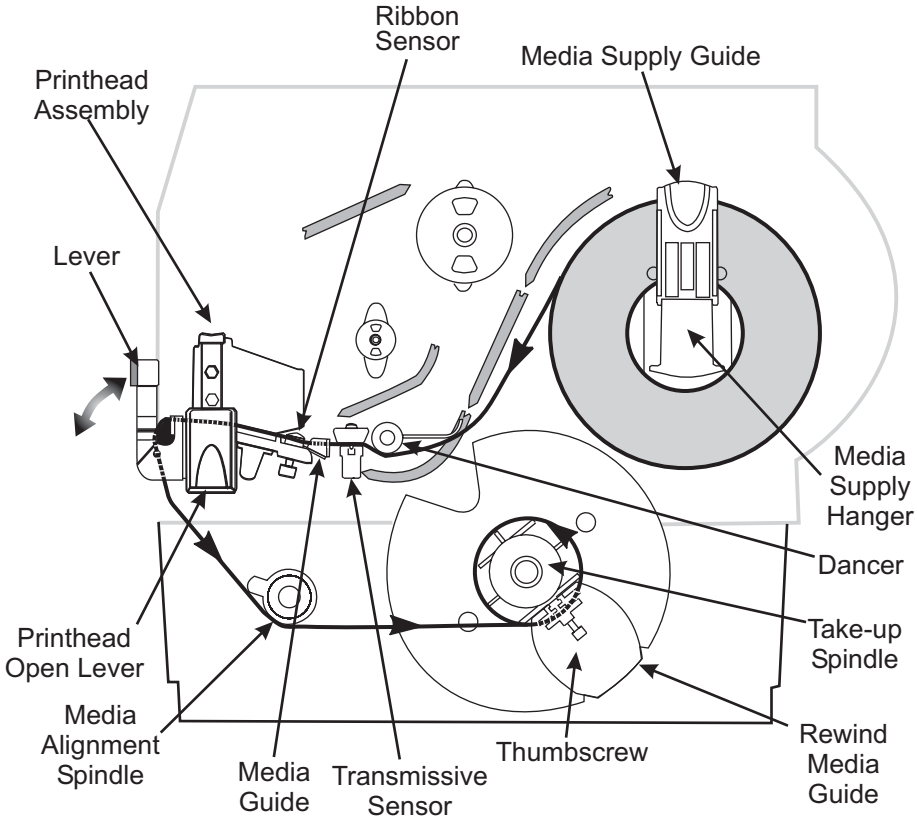


Figure 2-8. Value Peel Rewind (Rewind Mode)

Value Peel Rewind Media Alignment

Note • The media/liner should be installed flush against the back plate of the take-up spindle to prevent the media/liner from winding too loosely.

Perform the following adjustment if the media does not track properly onto the take-up spindle.

1. Refer to Figure 2-9. Turn the adjustment dial clockwise to align the media/liner material toward the inboard (i.e., main frame or electronics) side. This is the most likely adjustment.

or

2. Turn the dial counterclockwise to align the media/liner material toward the outboard side (i.e., away from the main frame or electronics side).

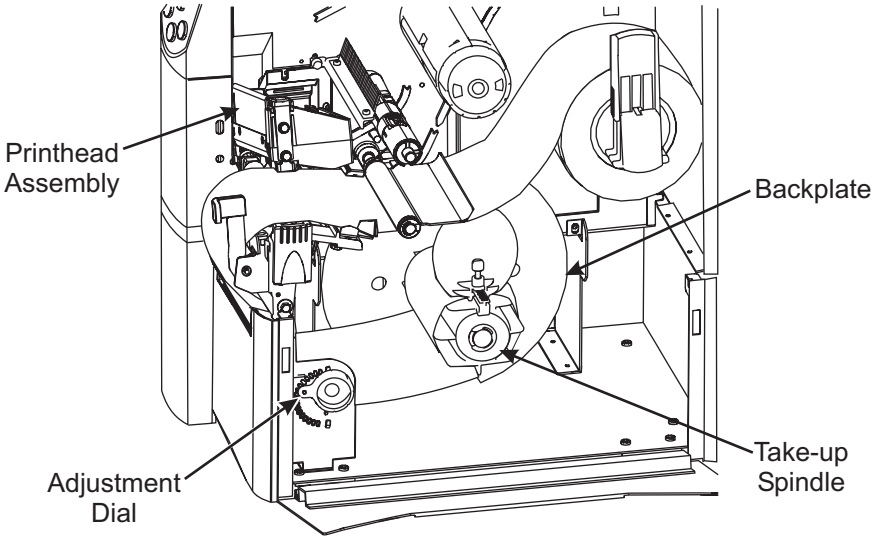


Figure 2-9. Value Peel Rewind Media Adjustment

Power Peel-off Mode

Note • Power peel-off option required. (Being replaced with value peel/rewind option).

Refer to Figure 2-10.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 36” (1 m) of media through the front of the printer.

8. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
9. Open the front housing assembly by lifting the handles; then, pivot down the front housing assembly.
10. Remove at least 12” (305 mm) of labels from the liner material.
11. Feed the liner material over the tear-off/peel-off bar, through the rectangular cutout in the mounting bracket, and under the media alignment spindle.
12. Close the front housing assembly by slightly lifting and then hooking it onto the pins on the tear-off/peel-off bar.
13. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
14. Wrap the liner around a core placed on the take-up spindle; then, turn the take-up spindle counterclockwise to wind up the excess liner material.
15. Slide the rewind media guide against the liner material and tighten the thumbscrew to lock it into position.
16. Close the front housing assembly.
17. Close the printhead assembly.

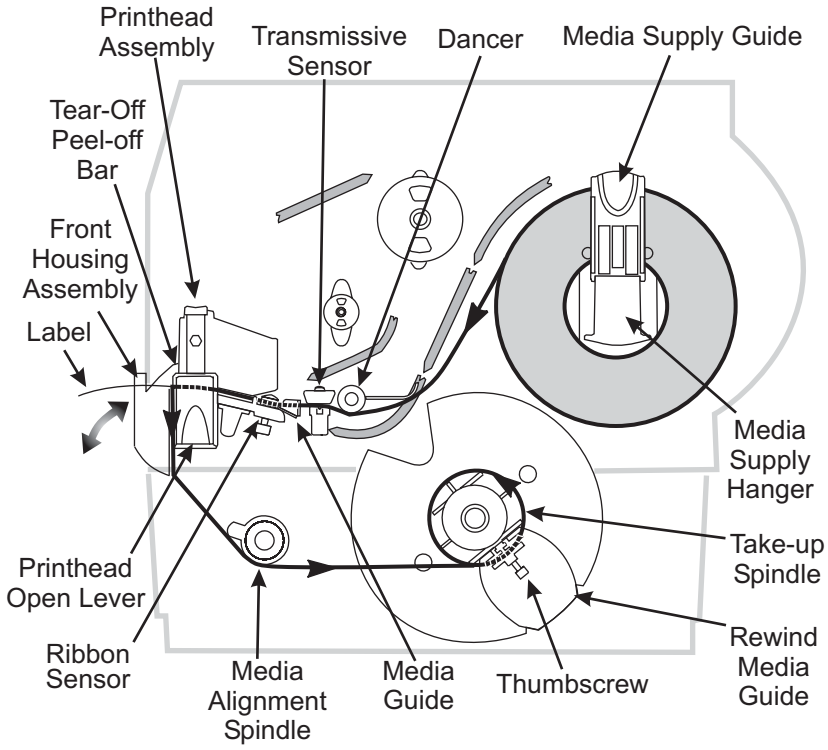


Figure 2-10. Power Peel Loading

Liner Removal

1. Cut the liner material prior to where it winds onto the take-up spindle.
2. Rotate the take-up spindle until the rewind media guide is in the “12 o’clock” position.

3. Loosen the thumbscrew, slide the rewind media guide to the end of the take-up spindle and flip the media guide horizontal.
4. Slide the core and liner material from the take-up spindle.

Power Rewind Mode

Note • Power peel-off option required. (Being replaced with value peel/rewind option).

Refer to Figure 2-11.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media supply guide as far from the printer frame as possible.
4. Place the roll of media on the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the roll.
6. Feed the media under the dancer, through the slot in the transmissive sensor, and under the ribbon sensor.
7. Pull approximately 36” (1 m) of media through the front of the printer.
8. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
9. Feed the media over the front housing assembly, through the rewind base, and under the media alignment spindle.
10. Loosen the thumbscrew and slide out the rewind media guide to the end of the take-up spindle.
11. Wrap the media around a core placed on the take-up spindle; then, turn the take-up spindle counterclockwise to wind up the excess material.
12. Slide the rewind media guide against the media, and tighten the thumbscrew to lock it into position.
13. Close the printhead assembly.

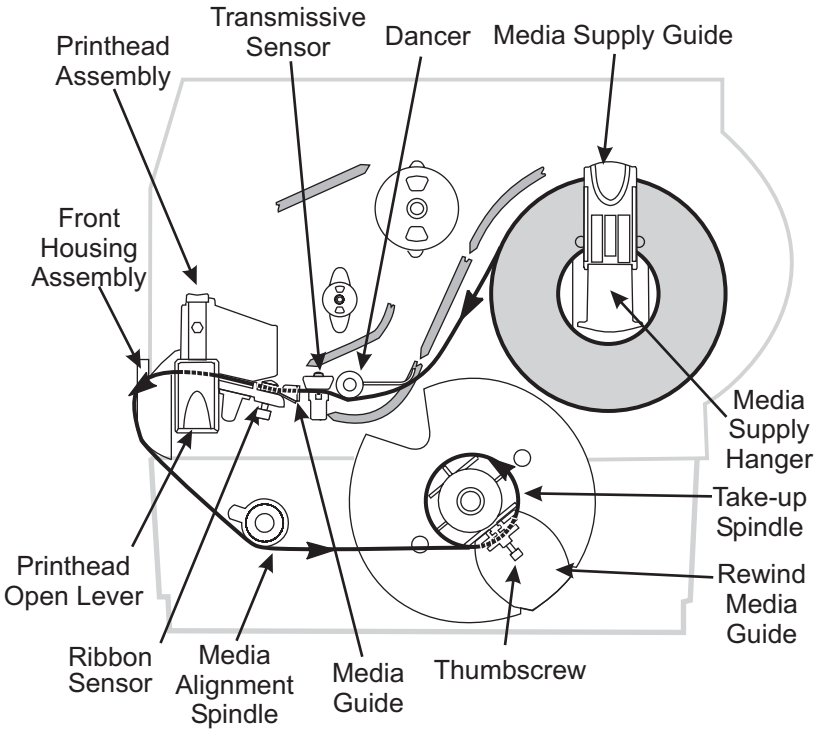


Figure 2-11. Power Rewind Loading

Media Removal

1. Cut the media prior to where it ends on the take-up spindle.
2. Rotate the take-up spindle until the rewind media guide is in the “12 o’clock” position.
3. Loosen the thumbscrew, slide the rewind media guide to the end of the take-up spindle and flip the media guide horizontal.
4. Slide the core and roll of media from the take-up spindle.

Power Peel Rewind Media Alignment

Note • The media liner should be installed flush against the back plate of the take-up spindle to prevent the media/liner from winding too loosely.

Perform the following adjustment if the media does not track properly onto the take-up spindle.

1. Refer to Figure 2-12. Turn the adjustment dial clockwise to align the media/liner material toward the inboard (i.e., main frame or electronics) side. This is the most likely adjustment.

or

2. Turn the dial counterclockwise to align the media/liner material toward the outboard side (i.e., away from the main frame or electronics side).

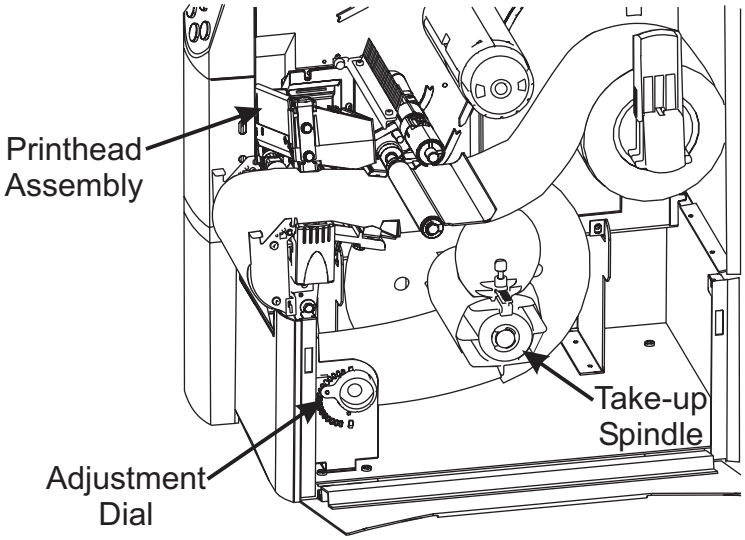


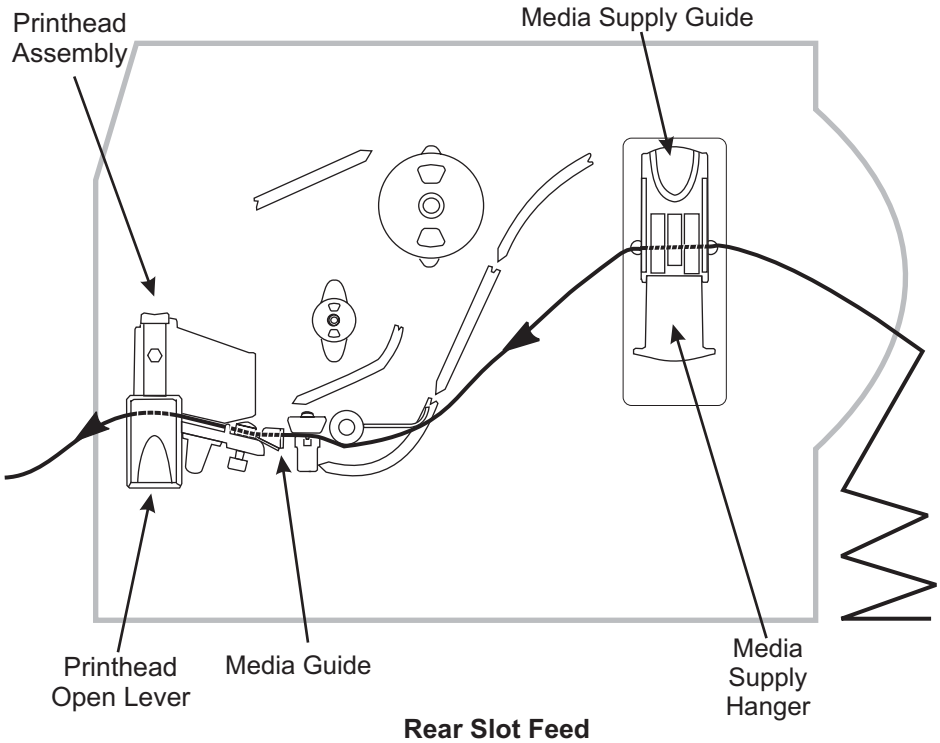
Figure 2-12. Media Alignment (Rewind Shown)

Fanfold Media Loading

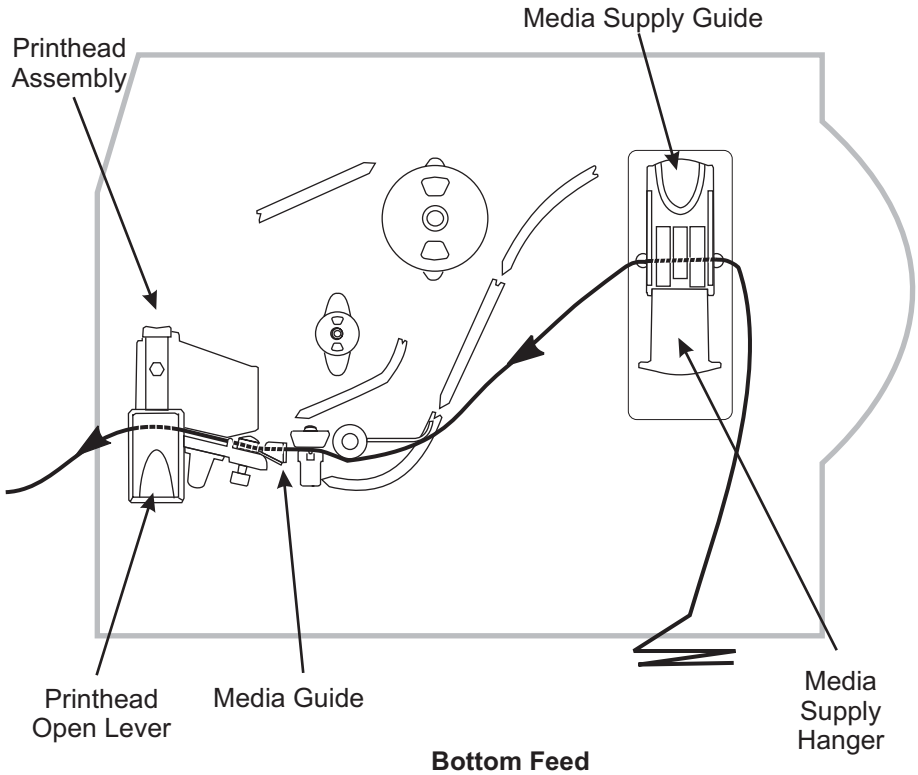
Fanfold media feeds through either the bottom or rear access slot. The lower rear cover guide surface can be used as a reference to align media in printer.

Refer to Figure 2-13.

1. Press the printhead open lever. The printhead assembly springs up.
2. Flip down the media supply guide.
3. Slide out the media guide as far from the printer frame as possible.
4. Pass the fanfold media over the media supply hanger.
5. Flip up the media supply guide. Slide in the media supply guide so that it just touches, but does not restrict, the edge of the media.
6. Thread the media under the dancer, through the slot in the transmissive sensor, under the ribbon sensor, and out the front of the printer.
7. Ensure that the media is against the back of the transmissive sensor. Then, slide in the media guide so that it just touches, but does not restrict, the edge of the media.
8. Close the printhead assembly.



Rear Slot Feed



Bottom Feed

Figure 2-13. Media Loading Fanfold

Note • Placing an empty 3” core on the hanger will assist the media movement.

Align Sensors

Transmissive Sensor

There is no positioning of the transmissive sensor. All media is to be loaded through the transmissive sensor as described in the media and ribbon loading chapters.

Note • The transmissive sensor should not be used when the sensor type is set to MARK. If the transmissive sensor is the active sensor when the sensor type is changed from WEB to MARK, an auto-calibration is initiated to make the reflective sensor active.
The transmissive sensor should not be used when the media type is set to Continuous. If the transmissive sensor is the active sensor when the media type is changed from Noncontinuous to Continuous, and auto-calibration is initiated to make the reflective sensor active.

Selecting the Media Sensor

A Z4M/Z6M printer can be configured to select either of the sensors. By default the printer is set to AUTO SELECT during auto-calibration.

Note • Changing the SENSOR SELECT setting via the front panel will initiate an auto-calibration.

The SENSOR SELECT setting may also be changed via ZPL II®. The format for the ^**JS** instruction is as follows:

^JSx

Where

^**JS**=Sensor Select

x=Type of sensor

A=Auto Select

R=Reflective Sensor

T=Transmissive Sensor

Note • Changing the SENSOR SELECT setting via ZPL II will initiate an auto-calibration.

The sensor can be selected from the LCD menu (see User’s Guide).

Media and Media Sensor Considerations

It is important that the appropriate media sensor is selected for the type media being used. If the Transmissive Sensor is set to Auto Select mode and an auto-calibration condition occurs (see media calibration), the appropriate media sensor will be selected. If Sensor Select is set for Reflective Sensor or Transmissive Sensor, the auto-calibration will calibrate the selected Media Sensor and ignore the other.

The trade-off between using Auto Select instead of the Reflective Sensor or Transmissive Sensor is an increased time to print the first label. If the Sensor Select is set for Reflective Sensor or Transmissive Sensor, the autocalibration will take longer to complete because it is determining which media sensor to activate.

- Reflective sensor type media – Non-continuous (labels, notched tags) media

This type of media has some type of physical characteristic (notch, black mark, gap between die-cut labels etc.) which indicates the start-of-label position. The reflective sensor must be properly positioned to sense these indicators.

- Transmissive sensor type media – Pre-printer liners, thick and opaque liners or dark adhesive sided media

This type of media requires the use of the transmissive sensor. The reflective sensor will not properly calibrate with this type of media.

Auto-Calibrate

The autocalibration of the *Z*4M/*Z*6M printer occurs at power-on and each time the printer recovers from error conditions such as media errors, ribbon errors and printhead open errors. When clearing an error, open and close the printhead and take the printer out of pause. The printer will begin the autocalibration process if all errors have been cleared.

During autocalibration, the printer automatically determines the label length, media and ribbon sensor settings. When non-continuous media is sensed, the calibration process is followed by the label length calculation. Once the label length is determined, the media feeds to the rest position and stops.

The results of this calibration are stored in the printer's memory and retained even if printer power is removed. These parameters remain in effect until the next calibration is performed.

Calibrate Control

The autocalibration process will not take place if the ZPL command or the front panel setting for "Media Power Up" or "Head Close" is set to "no motion." If set to "feed" the printer will feed until the first sensed gap, notch or mark passes the tear off bar. In these cases, the printer assumes the media is correctly positioned and starts printing without calibrating.

As long as the printhead is closed, calibration may be performed. Calibration may clear error conditions that prevent media movement. Unless an out-of-ribbon or out-of-media condition exists, ribbon and media error conditions are cleared by calibration.

Printer Self Tests

The *Z*4M/*Z*6M printer is designed to work with most Zebra media and ribbon combinations. However, in some applications, changes to the printer's configuration and mechanical settings may be required. For these situations, printer self test labels can be used to check print quality and ensure proper operation.

These self tests produce sample printouts and provide specific information that determines the operating conditions for the printer.

Each self test can be enabled from the LCD Menu. Hold the – key and turn power On (**I**) to access the menu.

Note • When performing self tests, disconnect all data interface cables from the printer.
When canceling a self-test before it's actual completion, always turn the printer power OFF and then back ON to reset the printer.
When performing these self tests while in the peel mode, you must remove the labels as they become available.
For self test Zebra recommends using full with media. Make sure that your print width is set correctly for the media you are using before you run any self tests, otherwise the test may print out on the platen.

Cancel Key Self Test

Press and hold **CANCEL** while turning the printer power On (**I**). Release the key anytime after the first front panel LED turns off. The Cancel Key Self Test prints a configuration label showing:

- Printer Configuration.
- Installed Options.
- Software Version.
- Copyright Notice.

Figure 2-14 shows an example of the printer configuration label. The configuration information will print over several labels if a label is not long enough to display all of the configuration information at one time.

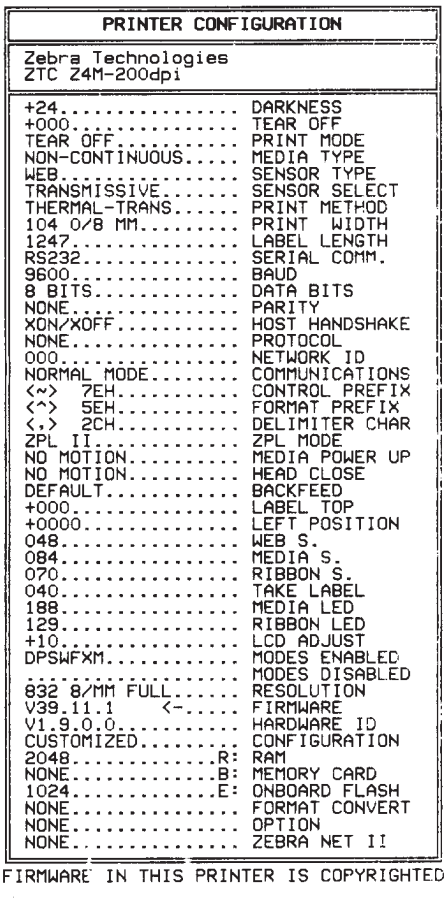


Figure 2-14. CANCEL Key Self Test Label (Configuration Label)

Pause Key Self Test

Press and hold **PAUSE** while turning the printer power On (**I**). Release the key anytime after the first front panel LED turns off. The Pause Key Self Test prints a series of labels which can be used when making print quality adjustments.

9999 labels at two inches per second pausing every 15 labels.

9999 labels at six inches per second pausing every 15 labels.

9999 labels at two inches per second pausing every 50 labels.

9999 labels at six inches per second pausing every 50 labels.

9999 labels at ten inches per second pausing every 50 labels (200 dpi printers only)

When the printer pauses, press **PAUSE** to restart printing at the same speed. Pressing **CANCEL** switches to the next set of labels.

Figure 2-15 provides an example of the Pause Key Self Test label.

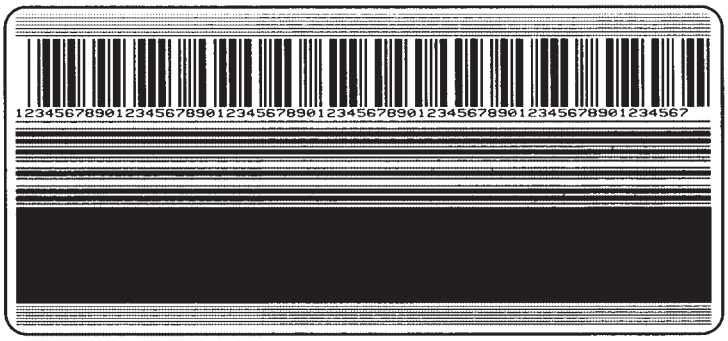


Figure 2-15. PAUSE Key Self Test Label

Feed Key Self Test

Press and hold **FEED** while turning the printer power on (**I**). Release the key anytime after the first front panel LED turns off.

The quantity of labels printed during this print quality test depends on the dot density of the printhead.

300 dpi printers: 7 labels are printed at the 2 ips and 6 ips print speeds.

200 dpi printers: 7 labels are printed at the 2 ips, 6 ips and 10 ips print speeds.

Each label is printed at a different darkness setting, starting at three settings below the current configured value and continuing to increase until it is three settings darker than the configured value. The relative darkness and speed are printed on each label. The bar codes on these labels can be ANSI-graded to check print quality.

Figure 2-16 provides an example of the Feed Key Self Test label.

Figure 2-16. FEED Key Self Test Label

Pause and Cancel Key Self Test

Press and hold both **PAUSE** and **CANCEL** while turning the printer power On (**I**). Release both keys anytime after the first front panel LED turns off.

The Pause and Cancel Key Self Test prints a series of 500 labels which can be used when making print quality adjustments. The printed label will look like the PAUSE Key Self Test label and will be sequentially numbered.

Figure 2-17 provides an example of PAUSE and CANCEL Self Test label.

Figure 2-17. PAUSE and CANCEL Key Self Test Label

Pause and Feed Key Self Test - Reset Defaults

Press and hold both **PAUSE** and **FEED** while turning the printer On (**I**). Release both keys anytime after the first front panel LED turns off.

PAUSE and FEED together reset the printer to the default settings. These values are not saved in EEPROM, but may be saved by sending the ZPL command ^JUS or saving through the LCD on the front panel. After entering factory defaults, the printer will remain in the paused state to let the operator know that the defaults have been loaded.

Communications Diagnostic Self-Test

The communications diagnostic mode is a troubleshooting tool for checking the interconnection between the printer and the host data device. When “Diagnostics” is selected, all data sent to the printer will be printed as straight ASCII hex characters. The printer prints all received characters including control codes like CR (Carriage Return).

To enter the communications diagnostics mode press and hold + while turning the printer On (**I**). Release the key anytime after the first front panel LED turns off. You can also enter enter the diagnostics mode by pressing the **SETUP/EXIT** and then + until you get to communications. Press **SELECT** then enter the password, press + to change number and – sign to move cursor.

Send a label format from the host data device to the printer and observe the printout on the label stock. Figure 2-18 provides an example of the diagnostic mode printout.

Note • An FE indicates a framing error.
An OE indicates an overrun error.
An PE indicates a parity error.
An NE indicates noise.

If errors are indicated, verify your communication parameters are correct.

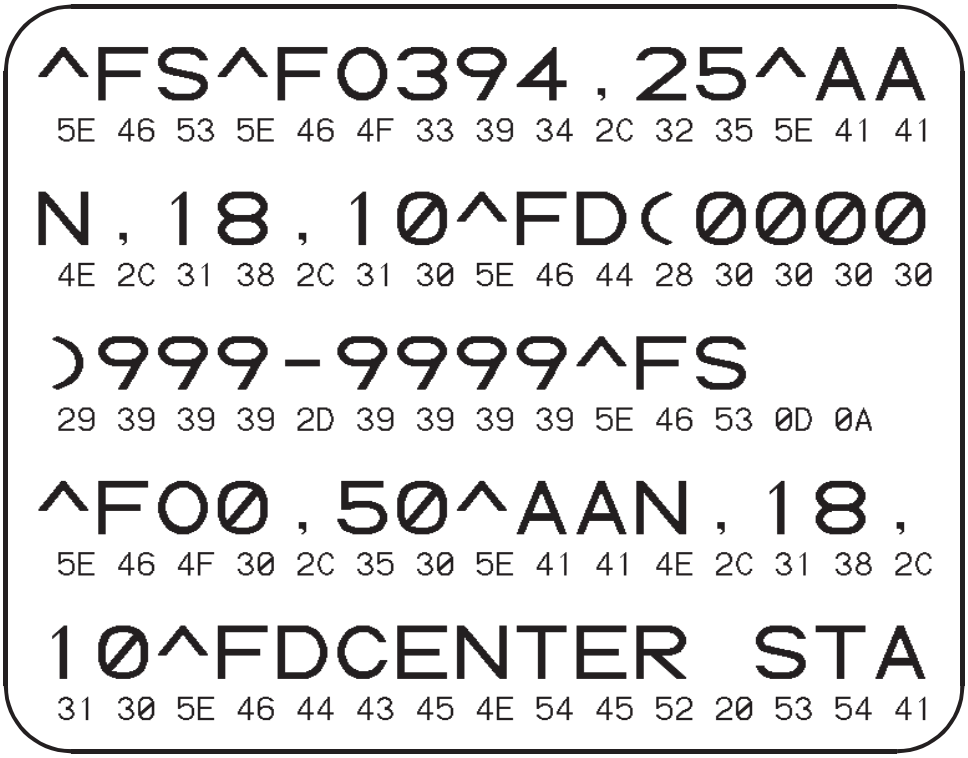


Figure 2-18. Communications Diagnostics Self Test


Zebra

Section 3
Troubleshooting

General

Consult the following troubleshooting tables.

If you encounter any problems that cannot be corrected with the aid of this manual, contact Zebra's Technical Support immediately to minimize or avoid printer downtime. Technical Support can also assist in determining if the printer should be returned for repair (See Table 3-1 for Technical Support numbers).

Another service of Zebra, Technical Support via the Internet (ZIP Support™ http://support.zebra.com), is also available 24 hours a day, 365 days a year.

Table 3-1. Technical Support Telephone Numbers

Zebra Technologies 333 Corporate Woods Parkway Vernon Hills, Illinois 60061-3109 Phone: (847)-913-2259 Fax: (847) 913-2578	Zebra Technologies Europe Limited, UK Zebra House, Unit 14, The Valley Centre, Gordon Road High Wycombe, Buckinghamshire, HP13 6EQ, UK Phone: +44 (0) 1494 472872 Fax: +44 (0) 1494 450103

Zebra's Zip Support™: http://support.zebra.com

Troubleshooting Charts

Symptom	Diagnosis	Action
No LEDs light.	No AC power applied to the printer.	Ensure the AC power cable is connected to a working voltage source.
	Faulty AC power fuse.	Replace fuse.
	No voltage available from the internal power supply.	Replace the power supply PC board(s).
Printer locks up when running the Power On Self Test with some or all LEDs ON.	Printer not configured properly.	Refer to the Pause and Cancel Key Self Test on page 2-27. Reload factory defaults then reconfigure the printer for the application.
Printer stops, PAUSE LED flashes.	Printer in peel mode and no peel option installed.	Change printer operating mode to fit application.
Printer stops, PAUSE LED ON and ERROR LED flashing slow.	Printhead element is overheated.	Printer resumes printing when the printhead element cools.
Dots missing in printed area of label.	Printhead element bad. Print quality problems.	Clean or replace the printhead. See Printhead and Platen Roller on page 4-6.
Loss of printing registration on labels.	Possible media sensor problem.	Adjust media sensor position. If problem persists, replace media sensor. See Replace Reflective Media Sensor on page 4-46.
	Printer set for continuous media, but non-continuous media loaded.	Set printer for correct media.
	Improperly adjusted media guides.	Reposition media guides.
	Incorrect printhead pressure.	Increase printhead pressure.
Excessive vertical drift in top-of-form registration.	Incorrect media loaded or media sensor adjustments.	Reload media and check media sensor position.
Light vertical lines running through all labels.	Dirty printhead.	Clean printhead. See Printhead and Platen Roller on page 4-6.
	Defective printhead elements.	Replace the printhead. See Replace Printhead on page 4-18.
Light printing or no printing on the left or right side of the label.	Too little printhead pressure on the side that is too light.	Adjust printhead pressure. See Adjust Printhead Mechanism on page 4-25.
Short printed lines at 45º to label edge on left or right side of label.	Too much printhead pressure.	Adjust printhead pressure. See Adjust Printhead Mechanism on page 4-25.
Fine gray lines on blank labels at angles.	Wrinkled ribbon.	See wrinkled ribbon in this table.
Long tracks of missing print on several labels.	Wrinkled ribbon.	See wrinkled ribbon in this table.
	Print element damaged.	Clean or change printhead.

Symptom	Diagnosis	Action
In Peel-off Mode, skewed or stuck labels.	Glue material from back of labels causing media movement problems.	Perform maintenance and clean the printer (see Table 4 - 1).
	Media and liner not properly aligned in printer.	Check media guide position.
Wrinkled ribbon.	Ribbon fed through printer incorrectly.	Re-install ribbon.
	Incorrect darkness setting.	Set darkness setting to the lowest value needed, from the control panel, for good print quality.
	Incorrect printhead pressure.	Readjust printhead pressure see Adjust Printhead Mechanism on page 4-25.
	Media not feeding properly; it is walking from side to side.	Readjust media guides.
Misregistration and misprint of 1 to 3 labels.	Media was pulled when motor was not moving.	Open and close the printhead so it calibrates to find the label length.
	Incorrect media sensor position.	Reposition movable reflective media sensor or use transmissive sensor.
	Media or ribbon improperly loaded.	Reload media and ribbon.
Changes in parameter settings did not take effect.	Parameters are set or saved incorrectly.	Reload the factory defaults, reconfigure the printer, save settings permanently, cycle the power OFF and ON.
ZPL was sent to printer, but not recognized. The DATA LED remains ON.	Communications parameters incorrect. Prefix and delimiter characters set in printer configuration do not match the ones sent in the ZPL label formats.	Check and reset communication parameters if needed.Set the characters in the printer to match ZPL format. Check configuration label for correct characters. If problem continues, check the ZPL format for changed prefix characters. Set and save permanently via the front panel.
ZPL was sent to printer, but not recognized. Data LED OFF.	Cable is not correct.	Verify correct cable is used. (If serial port is used, use a null modem cable). If parallel port is used, an IEEE 1284 cable is used.


Zebra

Section 4
Preventive and Corrective Maintenance

Preventive Maintenance

Preventive maintenance consists of:

- Visual Inspection
- Regular cleaning of the printhead and platen roller
- General cleaning of the printer's interior and exterior

An operator or technician may perform preventive maintenance (see Table 4-1) from the preventive maintenance chart.

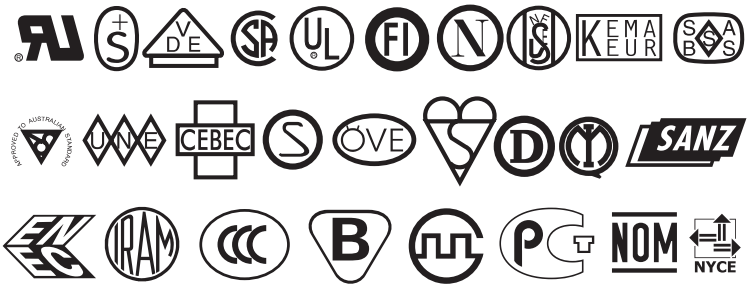
Tools Required for Preventive Maintenance

- Isopropyl alcohol (Recommended solution – 90% Isopropyl and 10% de-ionized water or use "Zebra's Preventive Maintenance Kit", Part Number 47362).
- Cotton swabs.
- Lint free cloth.

Equipment Safety Tips

After reviewing each procedure, place a check in the box.

❑ The AC power plug and IEC 320 connectors on all Zebra printers must bear the certification mark of at least one international safety organizations listed below.



❑ Unless indicated otherwise, turn the printer Off (**O**) before performing any maintenance procedures to the printer.

❑ Zebra printers comply with international regulations governing radiated emissions when using fully shielded data cables. Data cables must be fully shielded and fitted with metal or metallized connector shells. Required shielded data cables and connectors prevent radiation and reception of electrical noise. Use of non-shielded data cables may increase radiated emissions above the regulated limits.

❑ Permanent damage to the flash memory will result if you power up the printer with flash memory chips installed in the wrong direction.

❑ To ensure optimum printhead life, observe proper electrostatic safety precautions (i.e., ESD Wrist Straps) when removing, handling and replacing the printhead.

Equipment Safety Tips (Continued)

❑ Zebra recommends using solvent containing 90% isopropyl alcohol, 10% de-ionized water for cleaning of;

- Printheads
- Platen Rollers
- Peel-Off Roller
- Media Path
- Peel/Tear Bar
- Spindles
- Zebra PN 47362 preventive maintenance kit contains pre-moistened swabs soaked in the recommended solution.

❑ Ribbons used in the printers must be as wide as or wider than the media. If the ribbon is narrower than the media, areas of the printhead will be unprotected and subject to premature wear.

❑ Install Zebra printers on a solid, level surface of sufficient size and strength to accommodate the physical dimensions and weight of the unit. The area enclosure in which the printer will operate must meet the environmental conditions specified in the Maintenance Manual or User Guide. Electrical power must be available and in close proximity to the printer.

Personal Safety Tips

❑ Do not wear jewelry (rings, watches, etc.) or loose clothing when servicing the printers.

❑ Beware of “Pinch Points” on the printers. Be especially careful of:

- Opening and closing of covers.
- Printhead
- Rewind Spindle
- Platen Roller

❑ Wear protective eye wear when installing or removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off.

❑ For personal and equipment safety, always use an approved three-conductor power cord specific to the region or country intended for installation. This cord must use an IEC 320 female connector and the appropriate region-specific, three-conductor grounded plug configuration.

Cleaning

Exterior

The exterior surfaces of the printer may be cleaned with a lint-free cloth. Do not use harsh or abrasive cleaning agents or solvents. If necessary, a mild detergent or desktop cleaner may be used sparingly.

Interior

Remove any accumulated dirt and lint from the interior of the printer using a soft bristle brush and/or vacuum cleaner.

Refer to Table 4-1 for the correct interval for cleaning the printhead and platen roller. Poor print quality as represented by uneven print darkness, blank areas in bar codes or graphics, or illegible numbers and letters, may indicate a dirty printhead and/or platen roller.

Recommended Preventive Maintenance Schedule

Table 4-1. Preventive Maintenance Schedule

Area		Method	Interval
Printhead		Solvent*	After every roll of media or 500 feet of fanfold media when printing in the direct thermal mode. After every roll of ribbon when printing in the thermal transfer mode. These intervals are intended as guidelines only. You may have to clean more often, depending upon your application and media.
Platen Roller		Solvent*	
Media Sensor		Air blow	
Ribbon Sensor		Air blow	
Media Path (Dancer Assembly)		Solvent* + cloth	
Ribbon Path		Solvent*	
Cutter Assembly	If cutting continuous, pressure-sensitive media	Citrus-based cleaner such as Goo-Gone®	After every roll of media (or more often, depending upon your application and media).
	If cutting tag stock or label liner material	Solvent* and air blow	After every two or three rolls of media.
Tear-Off/Peel-Off Bar		Solvent*	Once per roll of media.
Media Take Up Spindle (Optional)		Formal preventive maintenance is not required on these spindles.	
Ribbon Take-Up Assembly		Ribbon supply and ribbon take-up assembly – once per year or after 200 rolls of ribbon. This spindle should only be disassembled and cleaned with Zebra solvent for it to operate smoothly.	
Take label sensor		Air blow	Once every six months.
Value Peel		Solvent*	Every ribbon roll or sooner if needed.
***Use Zebra PN 47362 preventive maintenance kit contains pre-moistened swabs soaked in the recommended solution.**			

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

Printhead and Platen Roller

Inconsistent print quality, such as voids in the bar code or graphics, may indicate a dirty printhead. For best results, perform the following cleaning procedure after every roll of ribbon.

Note • The printer can remain on while you are cleaning the printhead. In this way all label formats, images, and all temporary parameter settings stored in the printer's internal memory are saved.

To clean the printhead, refer to Figure 4-1 and follow these steps:

1. Open the media door and then open the printhead assembly.

Note • Ensure printhead is in the fully upright position and latched.

2. Remove the media and ribbon (if loaded).
3. Using a swab soaked in the Zebra-recommended solvent, wipe along the print elements from end to end. (The print elements are on the brown strip just behind the chrome strip on the printhead.) Allow sufficient time for the solvent to evaporate.
4. Manually rotate the platen roller and clean thoroughly with solvent and a swab.

Note • Do not use sharp objects to clean printhead or platen rollers.

5. Brush/Vacuum any accumulated paper lint and dust away from the media and ribbon paths.
6. Reload media and/or ribbon, close the printhead assembly, and close the media door.

Note • If print quality has not improved after performing this procedure, try cleaning the printhead with Save-a-Printhead cleaning film. This specially coated material removes contamination buildup without damaging the printhead. Call your authorized Zebra reseller for more information.

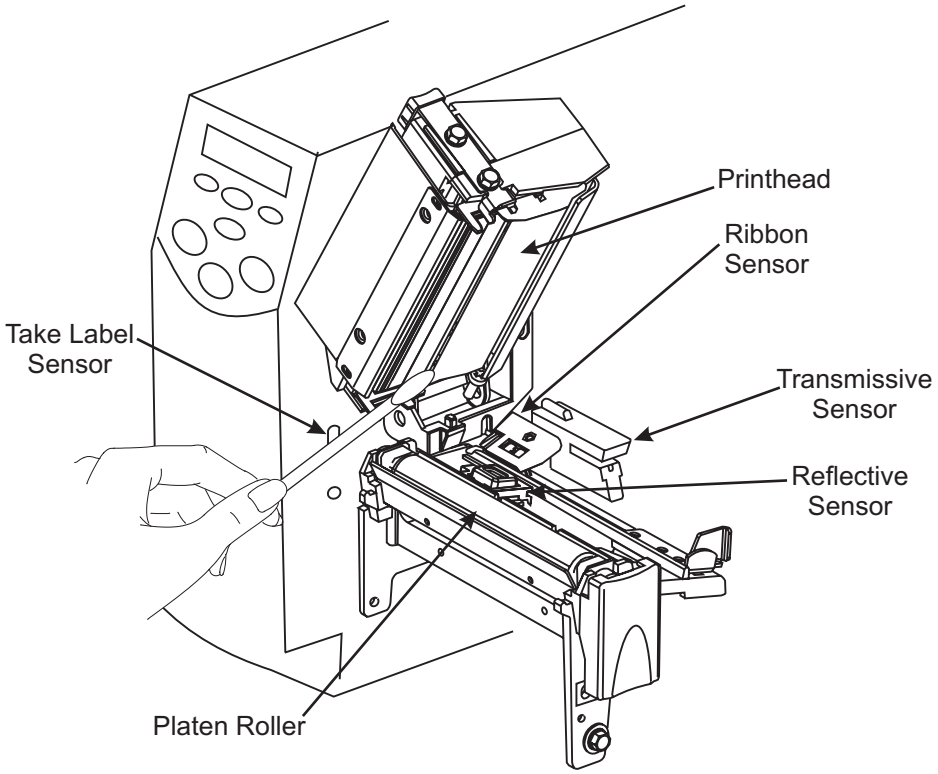


Figure 4-1. Printhead, Platen Roller and Sensor Cleaning

Cleaning the Sensors

Refer to Figure 4-1. Open the media door. Brush or vacuum any accumulated paper lint and dust away from the printer sensors. The reflective sensor, transmissive sensor, and ribbon sensor should be cleaned on a regular basis to ensure proper operation of the printer. For printers with the value peel and power peel option installed, clean the take label sensor and reflective surface on power peel. Close the media door.

Cleaning the Value Peel Module

(Value peel option required)

Refer to Figure 4-2. Perform the following procedure if adhesive buildup begins to affect peel-off performance.

1. Open media door. Open the printhead assembly.

Note • Ensure printhead is in the fully upright position and latched.

2. Open the pivot bracket assembly by pivoting the module toward you.

Note • Do not push down in the middle of the tear/peel bar, it may bend.

3. Use a swab soaked with the Zebra-recommended solvent to remove adhesive from the tear/peel bar.

4. Manually rotate the pinch and deflector rollers, clean thoroughly with solvent and a swab.
5. Close the pivot bracket assembly.
6. Close the printhead assembly. Close media door.

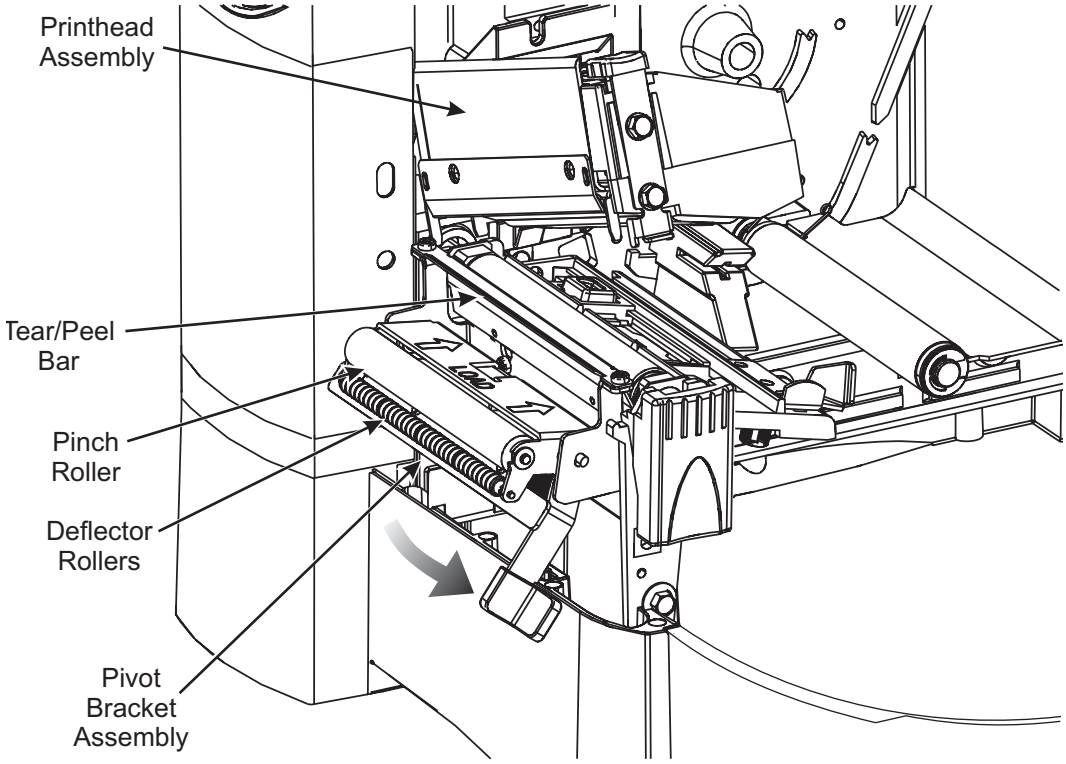


Figure 4-2. Cleaning the Value Peel-Off Module

Clean the Cutter Module

Refer to Figure 4-3. Use the following procedure to clean adhesive off of the upper and lower cutter blades:

Caution • The cutter blade is sharp. Do not touch or rub the blade with your fingers.

1. Open media door.
2. Remove the cutter shield by removing the thumb screw and lock washer.
3. Use a swab moistened with the Zebra-recommended solvent to wipe along the upper cutter blade.
4. To expose the lower cutter blade, turn the cutter motor thumb nut counterclockwise until you see the “V”-shaped lower cutter blade.
5. Use a swab withe the Zebra-recommended solvent and wipe along the lower blade.
6. Replace the cutter shield.
7. When you have finished cleaning the cutter module, close the media door, plug in, and turn on the printer. The lower cutter blade returns to its correct operating positions.

8. If the cutter continues to perform unsatisfactorily, contact an authorized service technician.

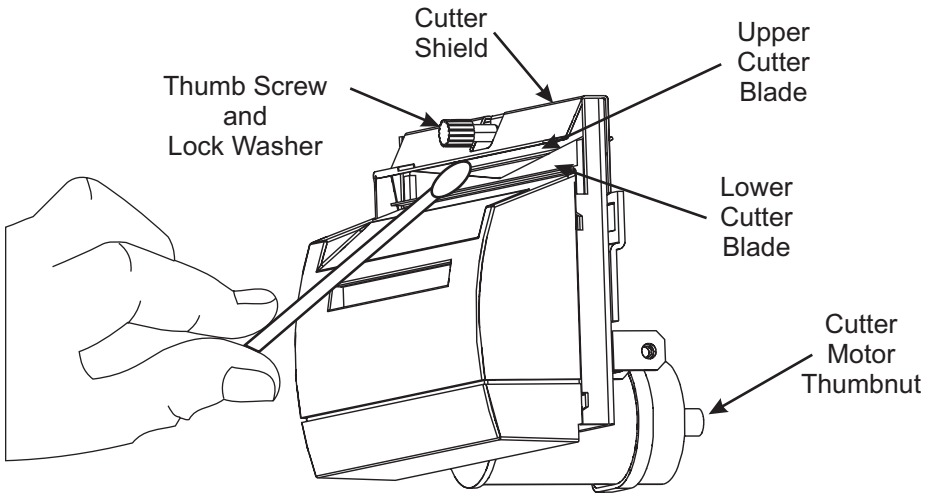


Figure 4-3. Cutter Module Cleaning

Lubrication

No lubricating agents of any kind should be used on the printer! Some commercially available lubricants will damage the finish and the mechanical parts.

Corrective Maintenance

Corrective maintenance consists of the following:

- Troubleshooting printer faults to a modular level.
- Replacing or adjusting faulty or inoperable components.
- Returning the printer to proper operating condition.

Tools Required

- Standard Screwdrivers
- Phillips Screwdrivers
- Metric Hex Key (Allen wrench) Set
- Standard Hex Key (Allen wrench) Set
- Metric Nut Driver Set
- Standard Nut Driver Set
- Long Needle Nose Pliers
- Anti-static wrist strap and mat (Portable Field Service Kit) (used for handling electronic components)
- Isopropyl Alcohol (90% alcohol/10% de-ionized water)
- Cotton Swabs and lint free cloths
- 0.060 inch Feeler Gauge or shim
- small (4-inch) crescent wrench
- small punch

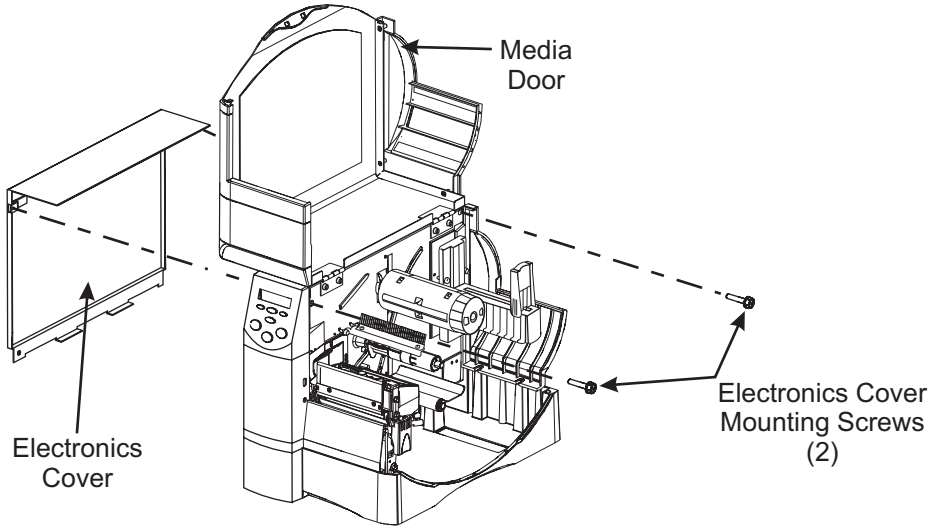
Print Mechanism Replacement

Caution • This installation must be performed by a qualified service technician.

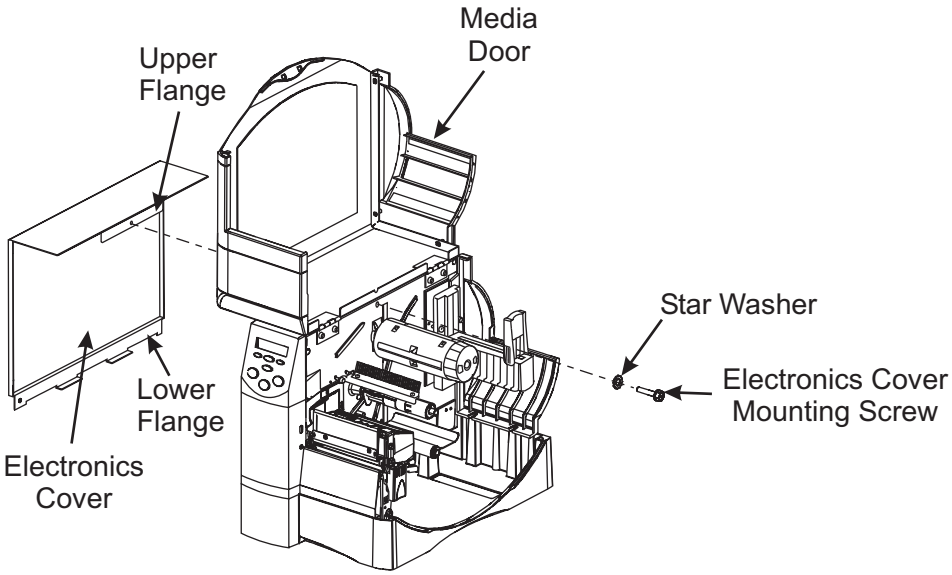
Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

Remove Print Mechanism

1. Turn the printer power Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-4. Open the media door and remove media and ribbon from the printer.
3. Remove the electronics cover by removing one or two screws securing the cover.



Early Version Z4M/Z6M



Current Version Z4M/Z6M

Figure 4-4. Removal and Installation of the Electronics Cover

Caution • Turn OFF (**O**) the printer and disconnect it from the power source before performing the following maintenance.

4. Refer to Figure 4-5. Rotate the two printhead pressure dials to the #1 position.

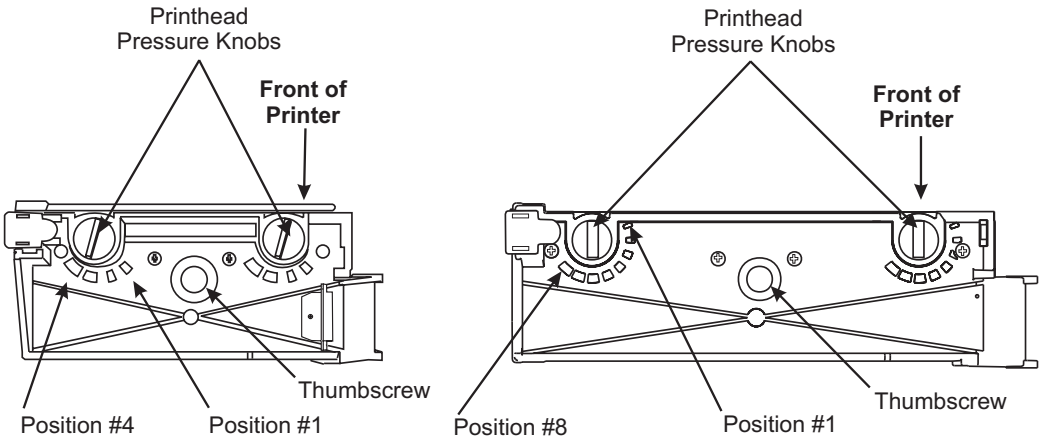


Figure 4-5. Print Mechanism

5. Unlatch the print mechanism.
6. Refer to Figure 4-6. Remove and retain the screw securing the printhead grounding strap.

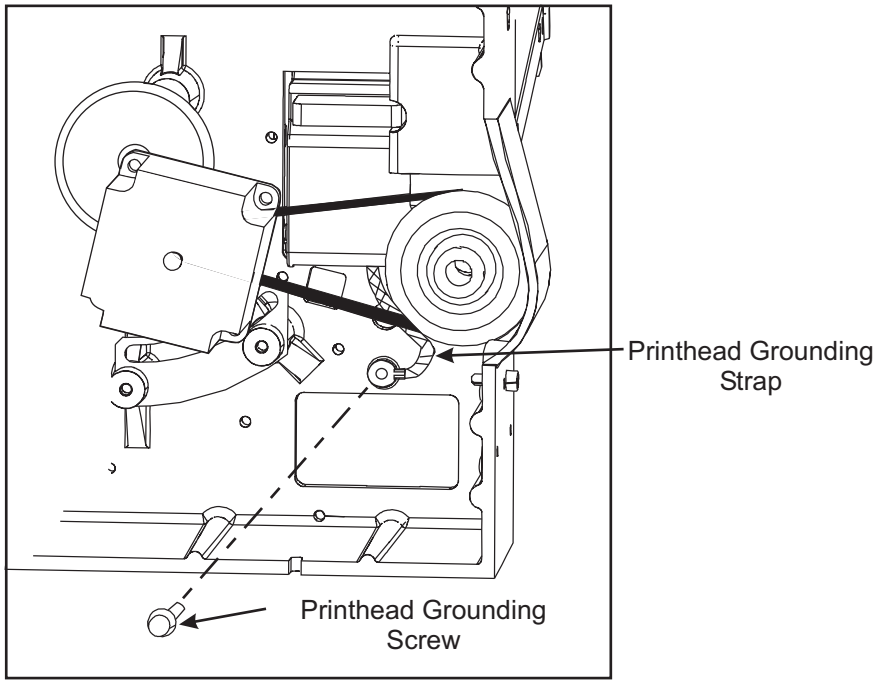


Figure 4-6. Printhead Grounding Strap

7. Refer to Figure 4-7. If installed, remove the PCMCIA card by removing the back cover from the printer.

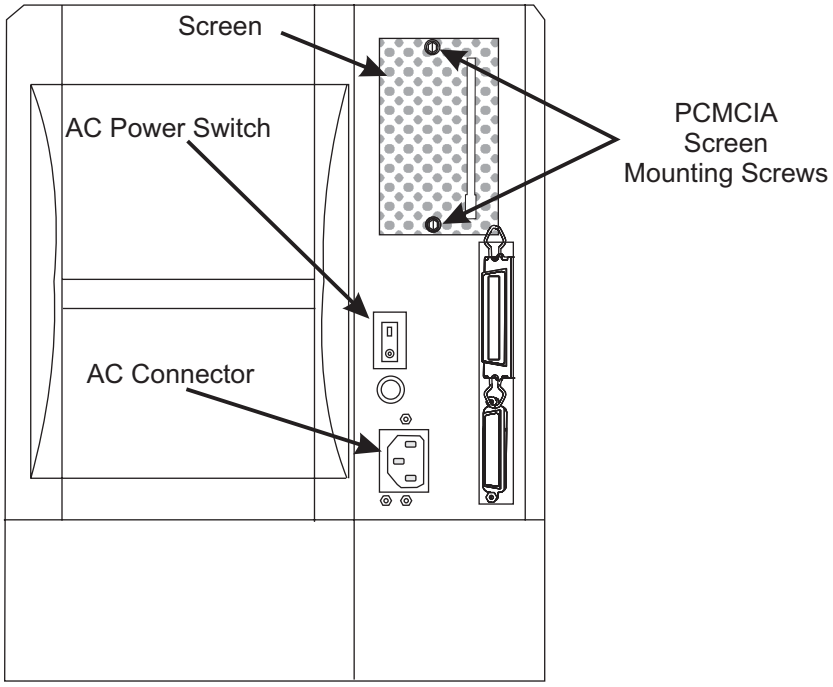


Figure 4-7. Back Cover Removal and Installation

8. Refer to Figure 4-8. Remove and retain the mounting screw and washer on the top of the PCMCIA card.

Note • Make sure not to lose the three insulating washers.

9. Remove and retain the three thumbscrews and washers at the bottom of the card.
10. Remove the printhead power cable from the power supply (J3).
11. Remove the printhead data cable from the main logic board (P1).
12. Make note of the routing of the cables, and remove the cables from their cable ties.

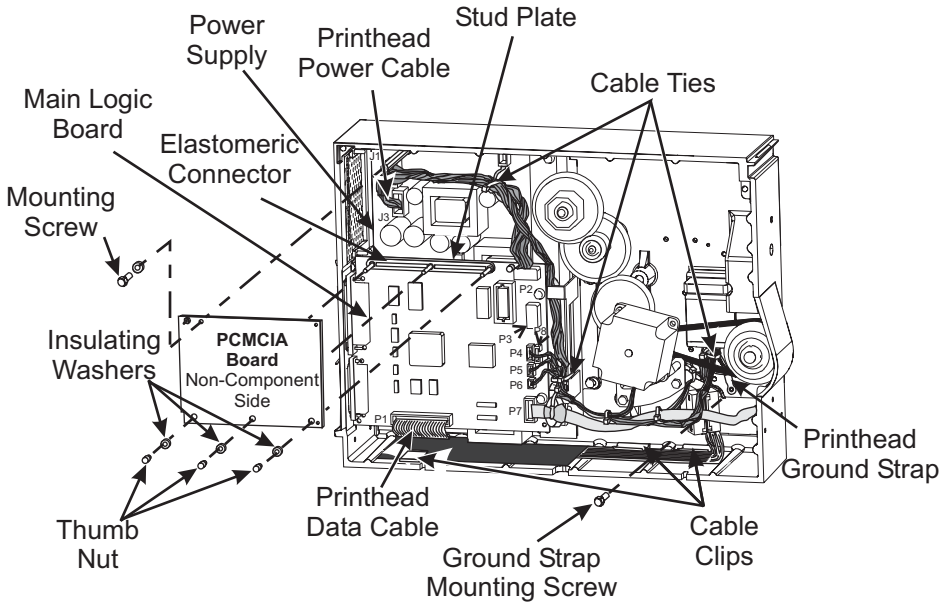


Figure 4-8. Cable Locations and Routing

13. Refer to Figure 4-9. Loosen and remove the two hex head screws, one Phillips head screw, and washers that secure the printhead housing assembly to the printer.

14. Remove the printhead housing assembly from the printer.

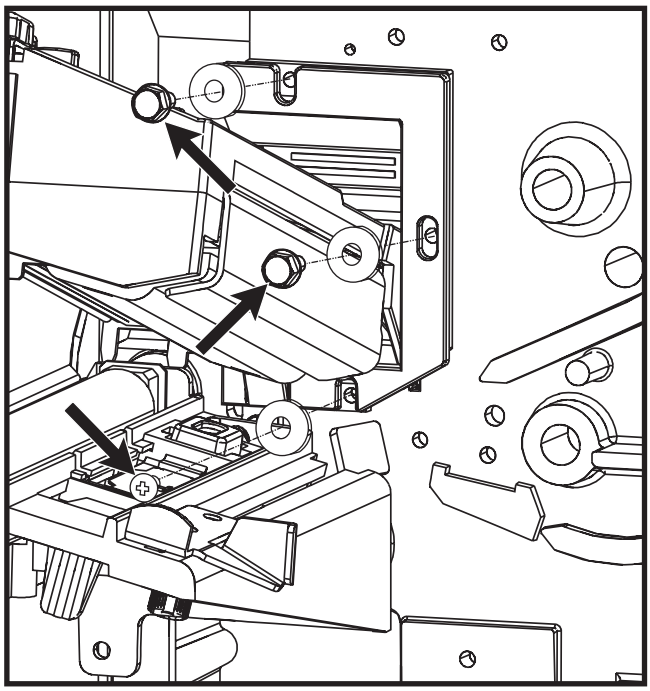


Figure 4-9. Print Housing Mounting Screws

Install the Print Mechanism

1. Feed the cables of the new print mechanism through the print mechanism mounting hole.
2. Refer to Figure 4-9. Install, but do not tighten, the three mechanism mounting screws and insulating washers.
3. Visually align the top edge of the print mechanism with the top edge of the raised mounting surface.
4. Snug the two hex head screws at this time, leaving the Phillips head loose.
5. Latch the print mechanism.

Align the Printhead

1. Refer to Figure 4-10. Remove the strike plate cap by gently prying one snap tab with a small flat-blade screwdriver. Loosen the two latch strike plate screws 1/2 turn.

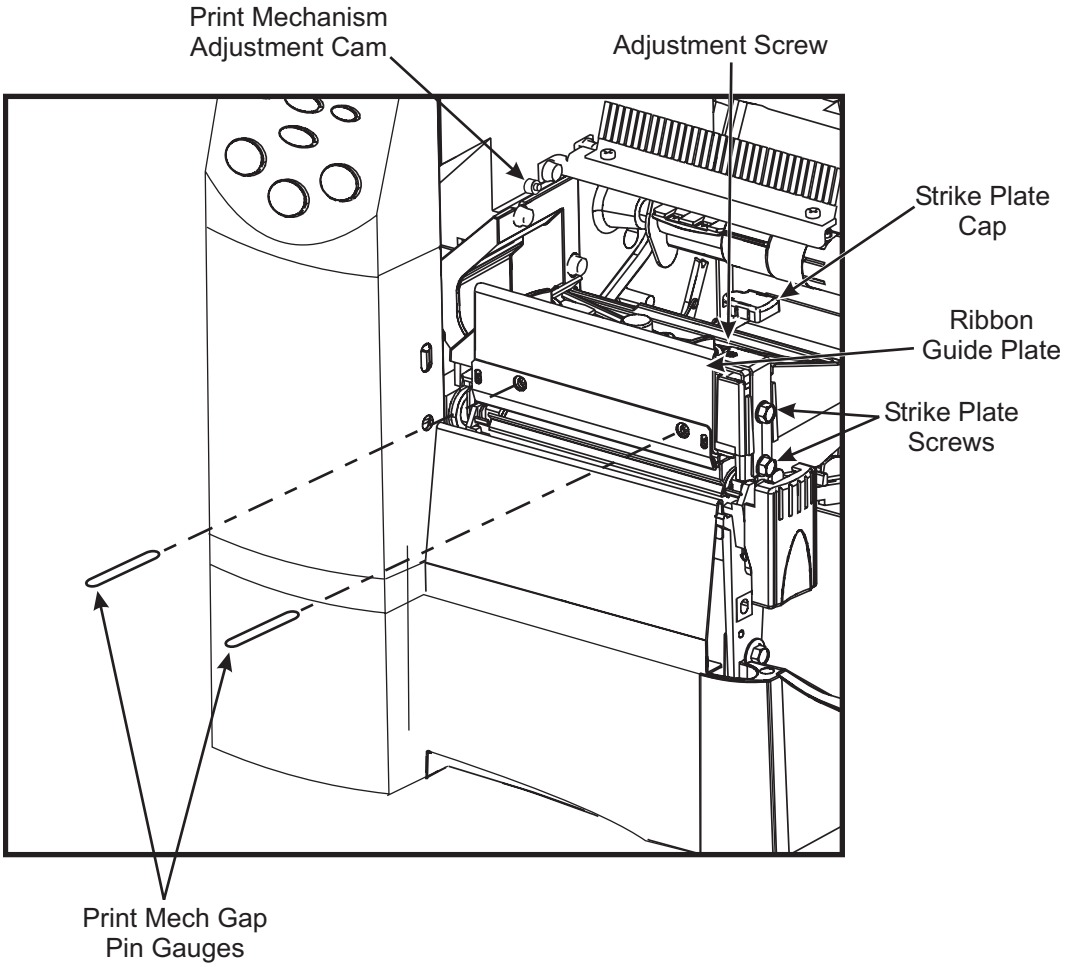


Figure 4-10. Printhead Housing Adjustments

2. Refer to Figure 4-5. Set the pressure dials to position #3.
3. Refer to Figure 4-10. Install the print mechanism adjustment cam with the screw provided in the kit on the printer frame.

4. Insert the print mechanism gap pin gauges through the holes in the front of the ribbon guide plate.
5. Refer to Figure 4-9. Slightly loosen the two hex head print mechanism mounting screws.
6. Refer to Figure 4-10. Place a 4-inch crescent wrench on the print mechanism adjustment cam. Turn the wrench counterclockwise, and push in and pull out the inside gap pin gauge. Adjust the cam until a small amount of friction can be felt.
7. After aligning the inside pin gauge, use a screwdriver to turn the adjustment screw on top of the latch plate strike. Push in and pull out the outside gap pin gauge and turn the adjustment screw until a small amount of friction can be felt. Check both pin gauges for equal amount of friction. Tighten the latch strike plate screws. Tighten the three printhead mechanism mounting screws. Replace the strike plate cap.

Note • After installing a new print mechanism, it may require adjusting. Proceed to step 8 to check and adjust sensor

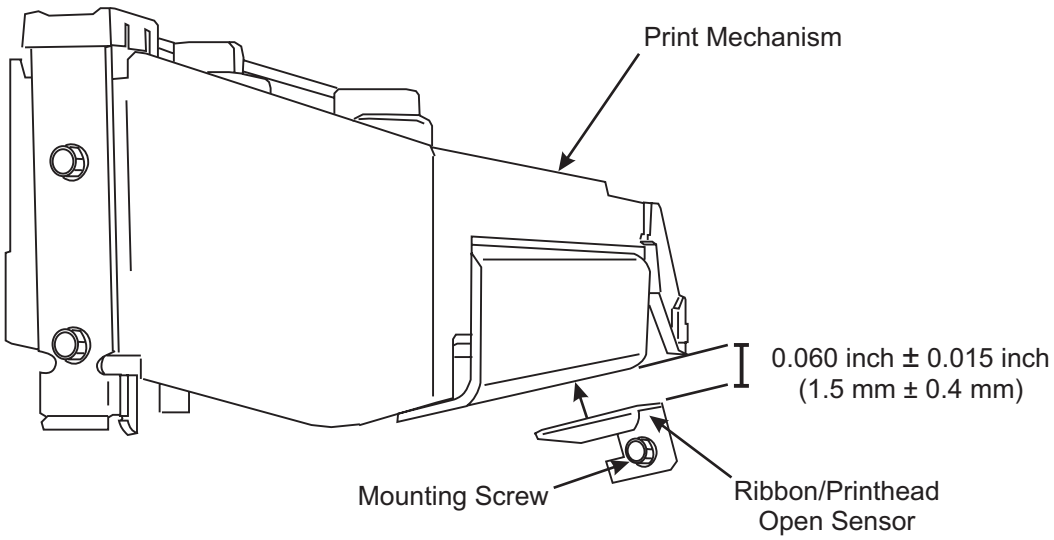


Figure 4-11. Ribbon/Printhead Open Sensor

8. Refer to Figure 4-11. Using a 0.060 inch (1.5 mm) feeler gauge, check the distance between the ribbon/head open sensor assembly and the printhead mechanism assembly. If the distance is not correct, loosen the mounting screw for the ribbon/ head open sensor and adjust for the proper distance. Once the correct distance is achieved, tighten the mounting screw.
9. Refer to Figure 4-8. Reconnect all cables to the main logic board and reinstall the cable ties.

Note • Route all Cables away from all moving parts.

10. Reinstall PCMCIA board if removed previously.

11. Reinstall the electronics cover and tighten the two screws to secure the cover to the printer.
12. Reinstall media and ribbon and reconnect power to the printer.
13. Rotate the two printhead pressure dials to the #3 position (Z4M), or the #6 position (Z6M).
14. Turn the printer power on and print the Pause Key and Cancel Key Self Test Label. Make sure that the black bar is mostly filled in solid and that the bottom line is parallel to the edge of the label. The black bar can have small voids of white.
15. If adjustments are needed, repeat the alignment procedure.
16. Remove the screw and the print mechanism adjustment cam. Save screw and adjustment cam for future use.

Replace Printhead

Caution • This installation must be performed by a qualified service technician.

Use the following procedure to replace the printhead.

Removing the Printhead

(Refer to Figure 4-12 and Figure 4-13).

1. From the rear of the printer, turn the printer power OFF and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Rotate the two printhead pressure dials to the #1 position.

Note • Printers with value peel, power peel, or cutter options may need to have them removed for ease of removal and installation of printhead.

Caution • The printhead is hot and can cause severe burns. Allow the printhead to cool.

4. Remove the printhead thumbscrew and slide the printhead fork assembly out of the printhead mechanism.
5. With the cable connectors exposed, carefully disconnect the two printhead cables from the printhead assembly.

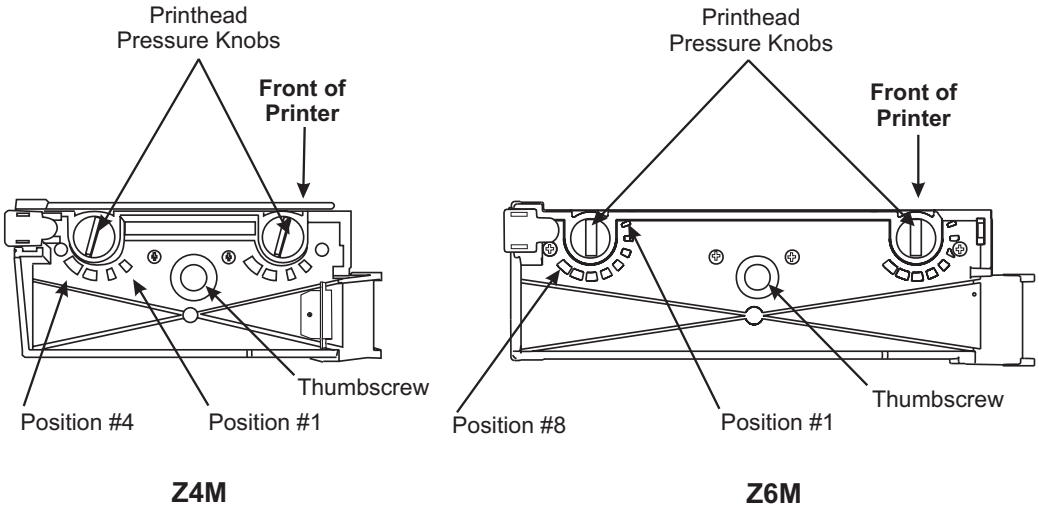


Figure 4-12. Top View of Printhead Mechanism

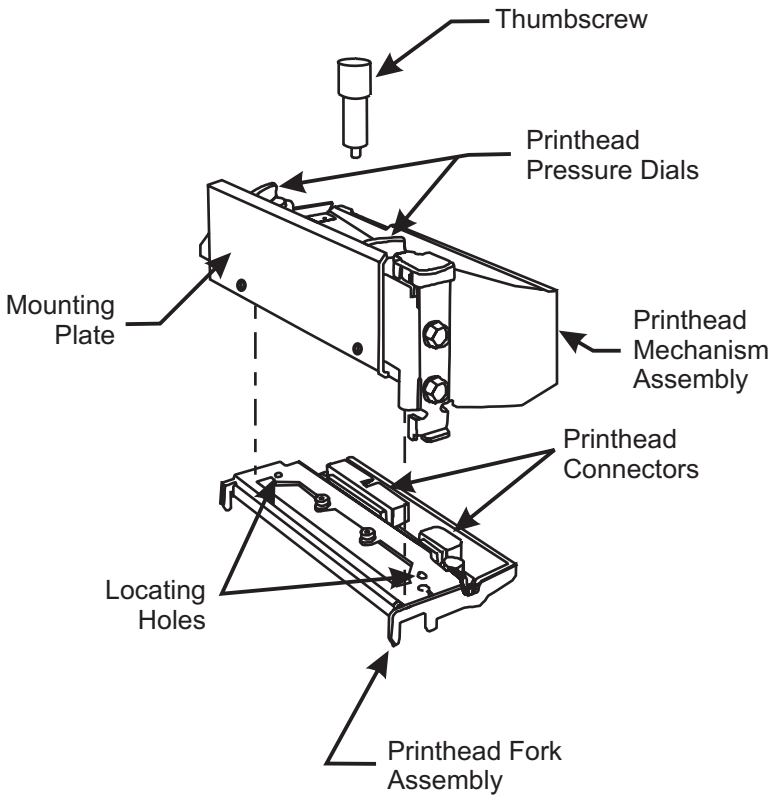


Figure 4-13. Printhead Removal/Install

Installing the Printhead

Refer to Figure 4-12 and Figure 4-13.

1. Connect the printhead cables to the printhead fork assembly and carefully slide the assembly into the print mechanism.

Caution • An improperly connected printhead data or power cable may cause the printhead to generate excessive heat and/or a false HEAD COLD message to display while the printhead is hot enough to cause severe burns. Allow the printhead to cool.

Note • When mounting the printhead fork assembly onto the print mechanism, visually inspect and ensure the cables are in their channels at the back of their carrier assembly, power cable under data cable, and are not binding on the printhead mechanism.

2. Make sure the two locating protrusions on the printhead mechanism mounting plate snap into the locating holes on the printhead fork assembly. Move the assembly back and forth to be sure that it is engaged. There should be little movement.
3. Secure the printhead to the mechanism with the previously removed thumbscrew.
4. Rotate the two printhead pressure dials back to their original position. Clean the printhead and platen roller.
5. Reinstall ribbon and media, connect the AC power cord, and turn the printer ON.
6. Refer to Figure 4-14. After completing a Power On Self Test (POST), print a configuration label by performing the CANCEL Key Self Test.

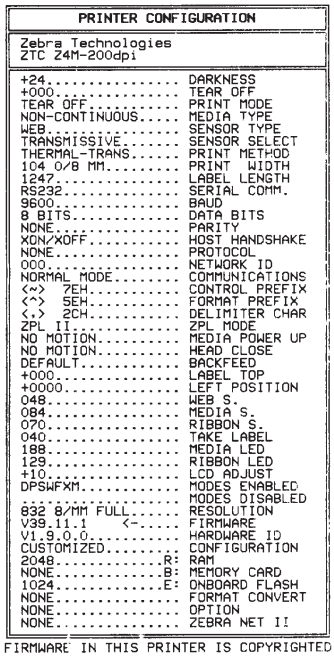


Figure 4-14. Configuration Label

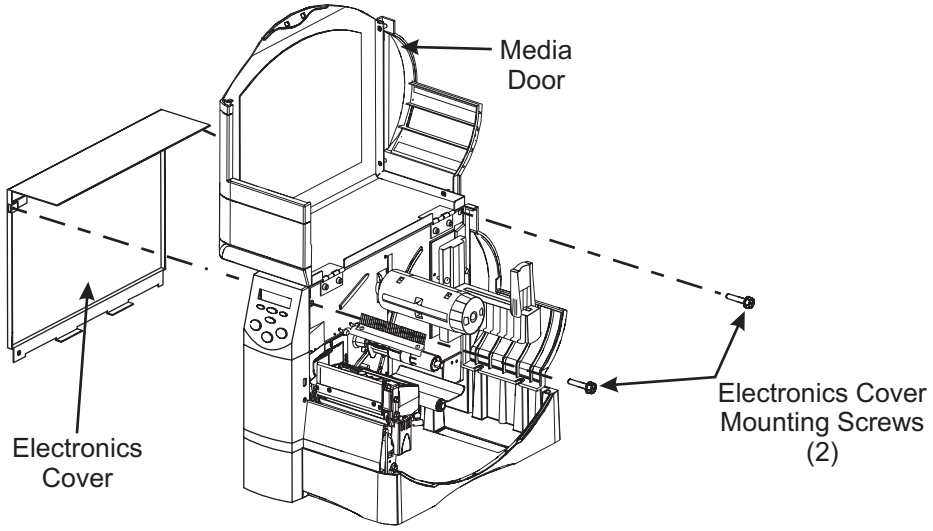
Drive System Printhead Changeover from 203 DPI to 300 DPI

Caution • This installation must be performed by a qualified service technician.

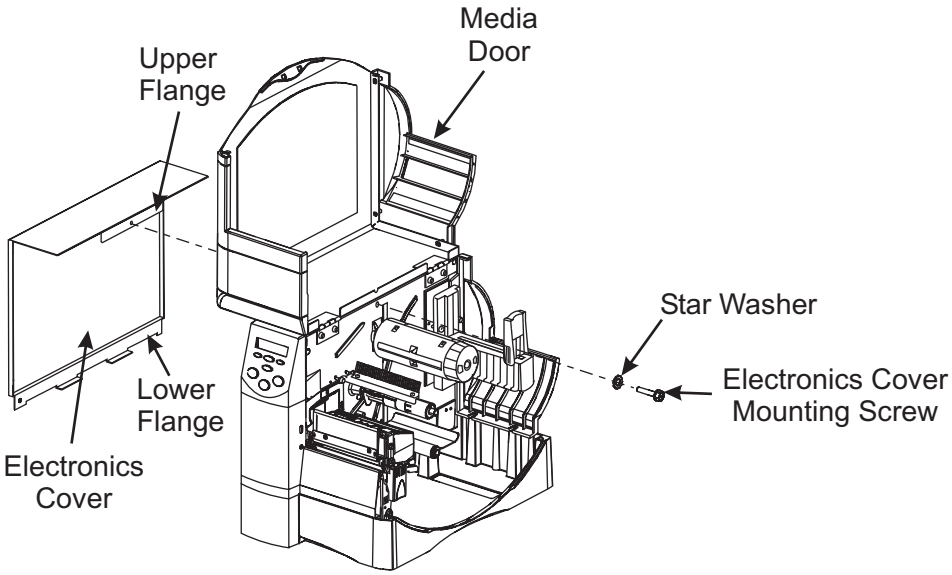
A field installable option for *Z*4M permits changing printhead density and drive system from 203 dpi to 300 dpi.

1. Refer to page 4-17. Remove the 203 dpi printhead, and install the 300 dpi printhead supplied in the kit.
2. Refer to Figure 4-15. Remove the electronics side cover by removing the one or two screws that secure the cover to the printer.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.



Early Version Z4M/Z6M



Current Version Z4M/Z6M

Figure 4-15. Remove the Electronics Cover

3. Refer to Figure 4-16. Use a hex key to remove the compound gear mounting screw. Turn the gear around.
4. Slide the gear back onto the printer, making sure that the gears mesh properly.
5. Secure the gear to the printer using the screws previously removed.
6. Using a hex key, loosen the stepper motor locking screw. Using a hex key loosen the pivot screw. Swing the stepper motor up to remove tension from the belt then tighten the locking screw in this position. Remove the belt from the stepper motor drive gear.

7. Using a hex key, remove and retain the two set screws on the platen roller pulley. Remove the pulley and belt. Turn the pulley around so that the large pulley faces away from the printer.
8. Slide the pulley and belt back onto the platen roller shaft.

Note • Make sure there is approximately a 0.020 inch (0.5 mm) gap between the pulley and the printer frame.

9. Secure it back onto the platen roller shaft using the set screws previously removed.

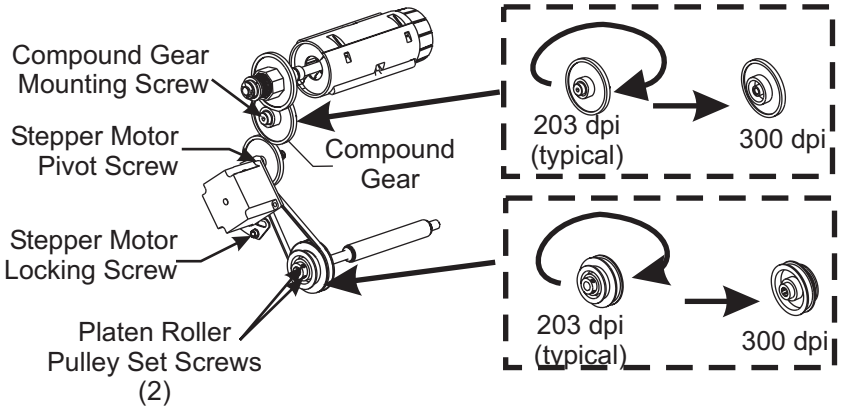


Figure 4-16. Changing the Compound Gear and Compound Pulley

10. Loosen the stepper motor locking screw. While lifting up on the stepper motor, place the belt onto the stepper motor drive gear.

Note • Belt deflection should be no more than ¼ inch (6 mm).

11. Adjust the position of the stepper motor to achieve the correct belt deflection.
12. Tighten the locking screw to secure the motor. Tighten the pivot screw.

Replace Latch Kit

Remove Latch

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

1. From the rear of the printer, turn the printer power OFF and disconnect the AC power cord.
2. Open the media door and remove the ribbon and media.
3. Refer to Figure 4-17. Remove the strike plate cap by prying up on the front edge with a small screwdriver.
4. Remove the latch cover by prying out on the front edge with a small screwdriver.
5. Remove the two screws holding the strike plate to the side of the print mechanism.
6. Pull out on the bottom of the strike plate while removing the adjustment screw from the print mechanism.

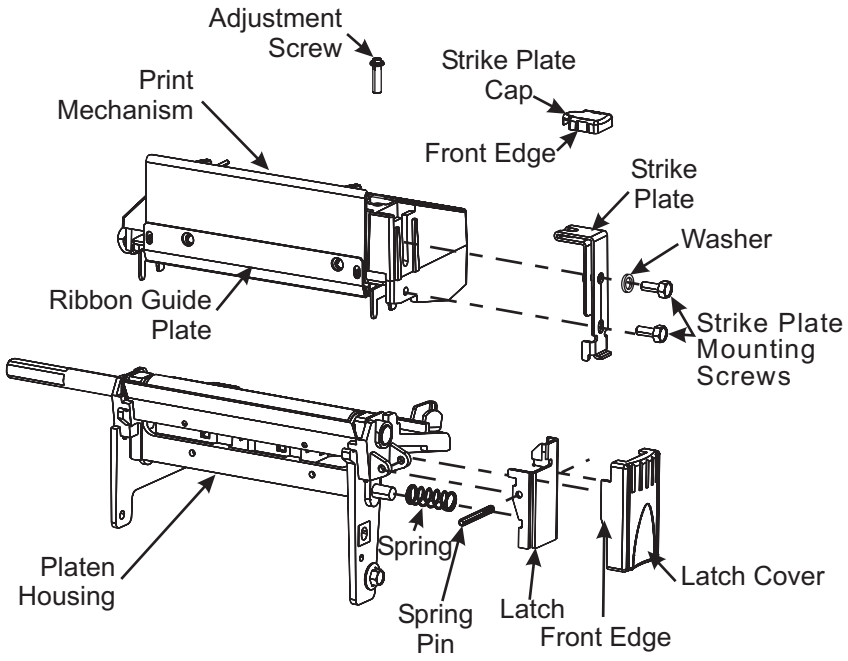


Figure 4-17. Latch Kit Parts

Note • The spring pin must be tapped out from the rear and removed from the front of the platen housing. Trying to remove the pin in the other direction will damage the platen housing.

7. Using a small punch, very lightly tap the spring pin from the rear of the platen housing until it is free from the latch and can be removed.
8. Remove the latch and compression spring.

Install Latch Kit

1. Refer to Figure 4-17. Install the compression spring on platen housing post.
2. Align latch with spring pin holes. Insert the spring pin through the front hole of the latch and though the platen housing. The rear hole in the latch is the only small one and you will need to tap on the spring pin. Lightly tap the spring pin into the rear hole. Leave equal amounts of spring pin sticking out on each side of latch.
3. Install the strike plate partially into print mechanism by sliding the short side to the inside of print mechanism as seen in Figure 4-18.

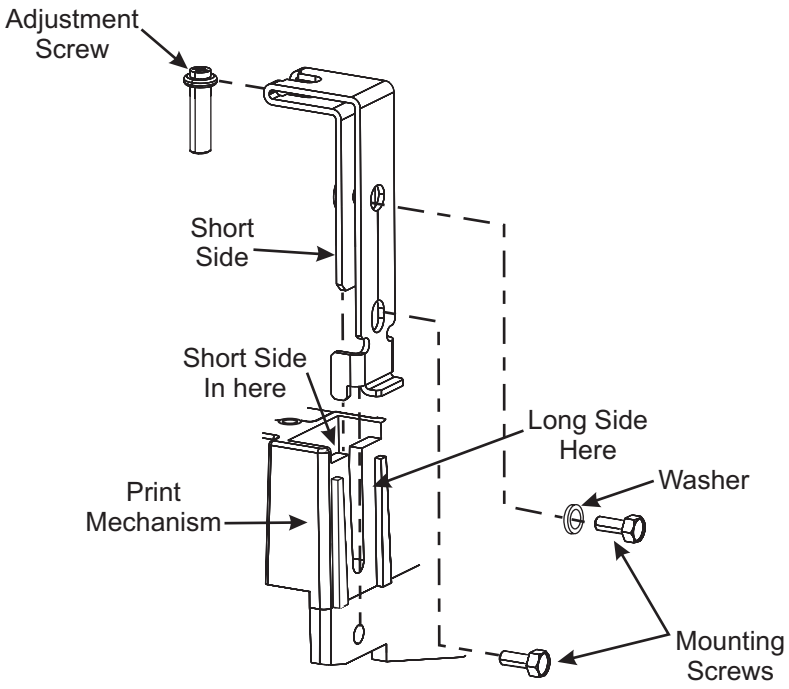


Figure 4-18. Strike Plate Installation

4. Install the adjustment screw into the strike plate by sliding it in the opening as seen in Figure 4-19.

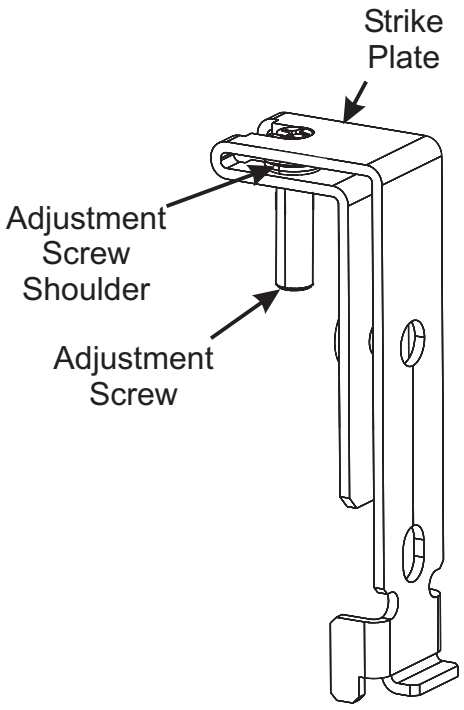


Figure 4-19. Adjustment Screw Location

5. Refer to Figure 4-19. Tighten the adjustment screw until the top of the strike plate is just below the top of the ribbon guide plate.

6. Refer to Figure 4-18. Insert the two mounting screws and washer through the strike plate and into the print mechanism. Do not tighten at this time, leave them approximately ½ turn loose.
7. Latch the print mechanism.

Adjust Printhead Mechanism

1. Refer to Figure 4-19. Insert the print mechanism gap pin gauges through the holes provided in the front of the ribbon guide plate.
2. Turn the adjustment screw until a small amount of friction is felt on the outside gap pin gauge.
3. Snug the two strike plate mounting screws.
4. Verify, with gauge pin, that the inside print mechanism adjustment is correct. A slight friction should be felt when sliding the inside pin in and out of the inside hole. If adjustment is fine go to step 9. If not continue with next step.
5. Install the print mechanism adjustment cam with the screw provided in the kit on the printer frame.

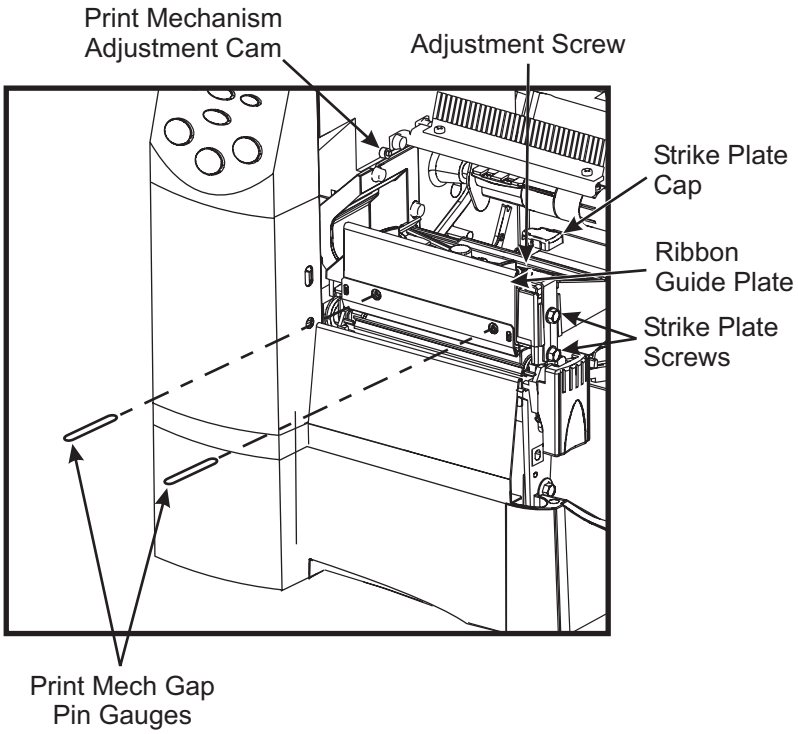


Figure 4-20. Printhead Housing Adjustments

6. Refer to Figure 4-20. Slightly loosen the two hex head and one phillips head mounting screws securing the print mechanism assembly to the main frame.
7. Place a small crescent wrench on the print mechanism adjustment cam. Turn the cam counterclockwise and push in and pull out the inside gap pin gauge. Adjust the cam until a small amount of friction can be felt. Snug the two hex head screws.
8. After aligning the inside pin gauge, verify that the outside adjustment is correct. Check both pin gauges for equal amount of friction. Tighten the latch plate strike screws.

9. Tighten the printhead mechanism mounting screws when equal pressure is obtained.
10. Refer to Figure 4-20. Tighten the two print mechanism hex screws and the phillips head screw.

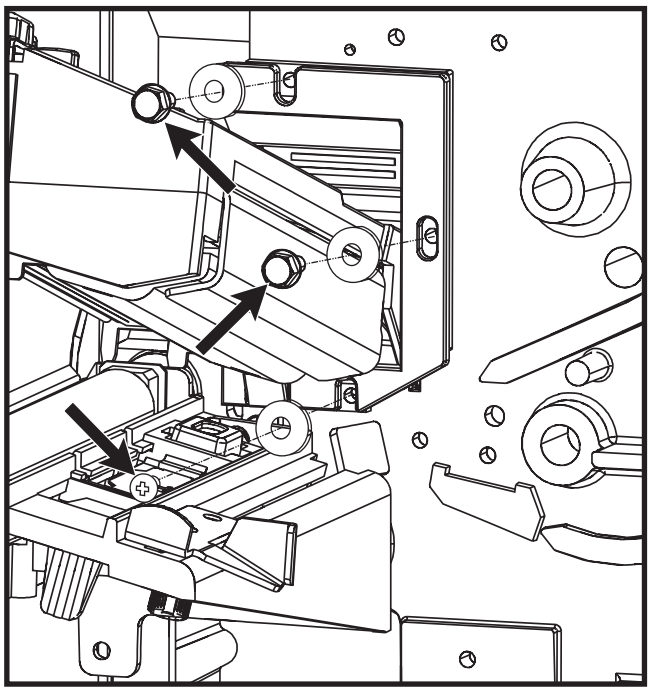


Figure 4-21. Print Mechanism Mounting Screws

11. Reinstall the strike plate cap.
12. Reinstall the latch cover.
13. Reinstall the ribbon and media.
14. Reconnect AC power cord and restore power.
15. Remove the screw and the print mechanism adjustment cam. Save screw and adjustment cam for future use.

Replace Platen Roller

Caution • This installation must be performed by a qualified service technician.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

If the platen roller is cut or cracked, it needs to be replaced. A damaged platen roller contributes dramatically to poor print quality.

Remove Platen Roller

1. Turn the printer power OFF at the rear of the printer. Disconnect the AC power cord.
2. Open the media door and remove all media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronic side cover by removing the one or two screws that secure the cover to the printer.

Note • Make note of the orientation of pulley and around which pulley the belt is installed.

4. Refer to Figure 4-16. Using a hex key, loosen the stepper motor locking screw and the loosen the pivot screw. Pivot up the stepper motor and remove the drive belt.
5. Figure 4-22. Using a hex key loosen the two set screws on the compound pulley. Remove the pulley and belt from the platen roller shaft.

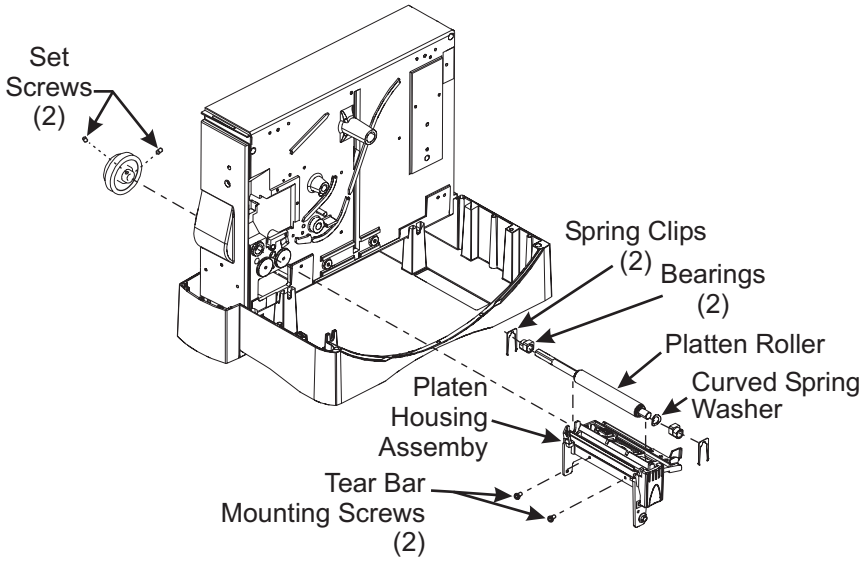


Figure 4-22. Platen Roller Assembly (*Z*4M Shown)

6. Using a hex key, remove the two tear bar mounting screws. Remove tear bar.

Note • The inner spring clip does not have to be removed to remove the platen roller and bearings.

7. Refer to Figure 4-22. Using two standard screwdrivers or needle nose pliers squeeze and push up on the barbed legs of outer spring clip to disengage it from the platen housing.

8. Locate the circular cut-out on the top of the outer spring clip, insert a screwdriver, gently pry up and remove the clip. Use the same procedure for the clip on the inboard side of the platen roller to loosen the clip.

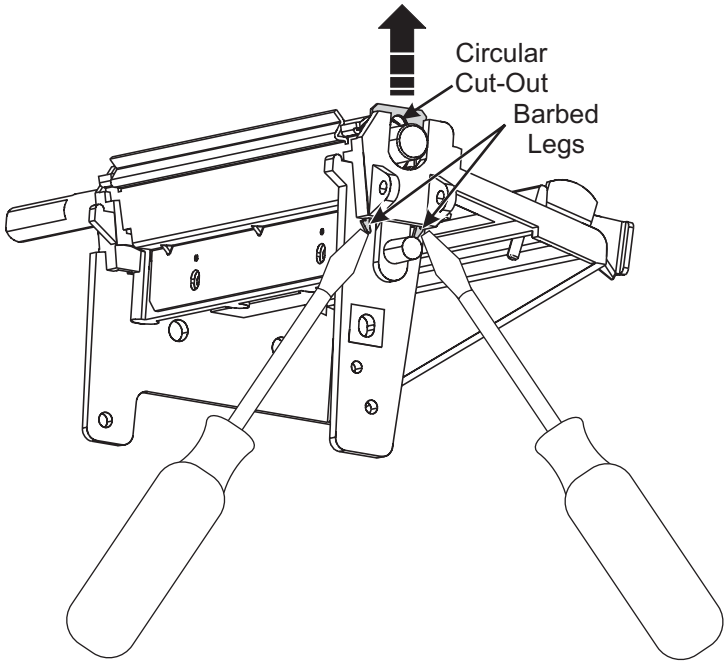


Figure 4-23. Platen Roller Disassembly

9. Remove and discard the platen roller and bearings.

Install Platen Roller

1. If you removed the old inboard spring clip insert a new spring clip part way into the inboard platen housing.

Note • The flat side of the bearing must face up.

2. Refer to Figure 4-23. Install the inboard bearing on to the inboard shaft of the platen roller as shown.
3. Insert the platen roller shaft through the inboard clip. Start the new inboard bearing into the clip. Work the inboard bearing back and forth until the bearing is up against the clip. The round side of the bearing goes down into the housing.

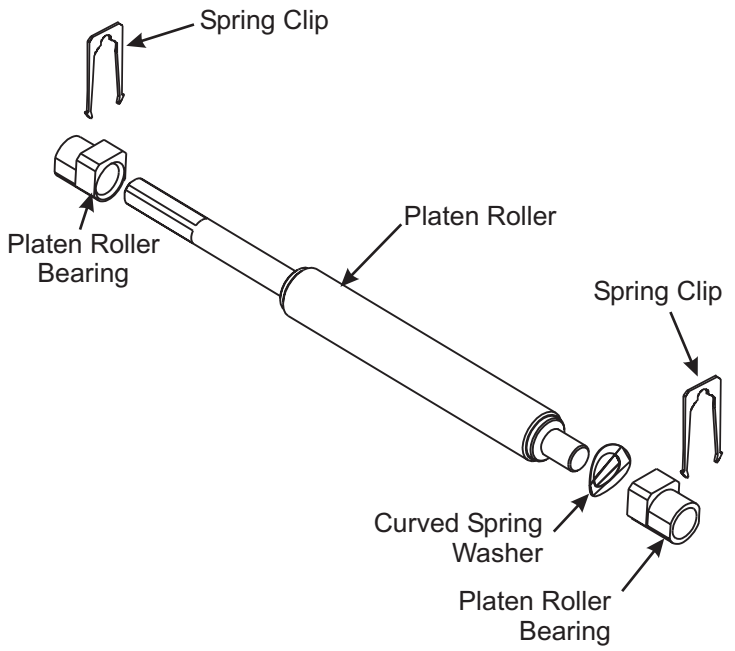


Figure 4-24. Platen Roller Kit

4. Once the inboard bearing is fully against the clip, angle up the outboard end of the platen just enough to slide on the wave washer and outboard bearing. Seat the platen roller and bearings in the platen housing.
5. Verify that the bearings are seated in the housing with the flat side up. Position the outer clip straight over the circular part of the outboard bearing. Press or tap on the spring clips until they completely seat (snap) into the housing.
6. Reinstall the tear bar and tighten the mounting screws.

Note • The large diameter pulley is used for 203 dpi printing and the small diameter pulley is used for 300 dpi printing.

7. Install the belt onto the correct pulley of the compound pulley. Position as noted in step 4 of the “Removing the Old Platen Roller” instructions.
8. Slide the compound pulley onto the platen roller shaft. Make sure there is 0.020" (0.51 mm) clearance between the platen roller pulley and the printer side frame. The set screws should be on the outboard end of the compound pulley.
9. Figure 4-16. Rotate the compound pulley so the two set screws align with the flat spots on the platen roller shaft. Tighten the two set screws to secure the pulley to the platen roller shaft.

Note • Belt deflection should be no more than ¼ inch (6 mm).

10. While lifting up on the stepper motor, place the belt onto the stepper motor drive gear.
11. Adjust the position of the stepper motor to achieve the correct belt deflection and tighten the locking screw to secure the motor. Tighten the pivot screw.

12. Replace the electronic side cover. Place media and ribbon back into the printer. Close the media door. Reconnect the AC power cord.
13. Turn the printer power ON and print a configuration label.

Replace Main Logic Board

Remove Main Logic Board

Caution • This installation must be performed by a qualified service technician.

1. From the rear of the printer, turn the printer power Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-15. Open the media door and loosen the one or two screws that secure the electronics side cover to the printer. Close the media door, and then remove the electronics cover from the printer.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

3. If PCMCIA option is installed, refer to "Installing the Memory Card (PCMCIA) Interface Option Kit" on page 4-53 and remove the PCMCIA card, the elastomic connector and the stud plate.
4. Refer to Figure 4-25. Remove and retain the two screws and washers that secure the serial port connector to the rear of the printer.
5. Remove and retain the two screws and washers that secure the parallel port connector to the rear of the printer.

Note • Make a note the orientation and location of all connectors.

6. Refer to Figure 4-25. Disconnect all connectors from the main logic board.

Note • Keep the main logic board available to retrieve the flash memory.

7. Refer to Figure 4-25. Remove and retain the two screws that secure the main logic board to the printer. Remove the main logic board.

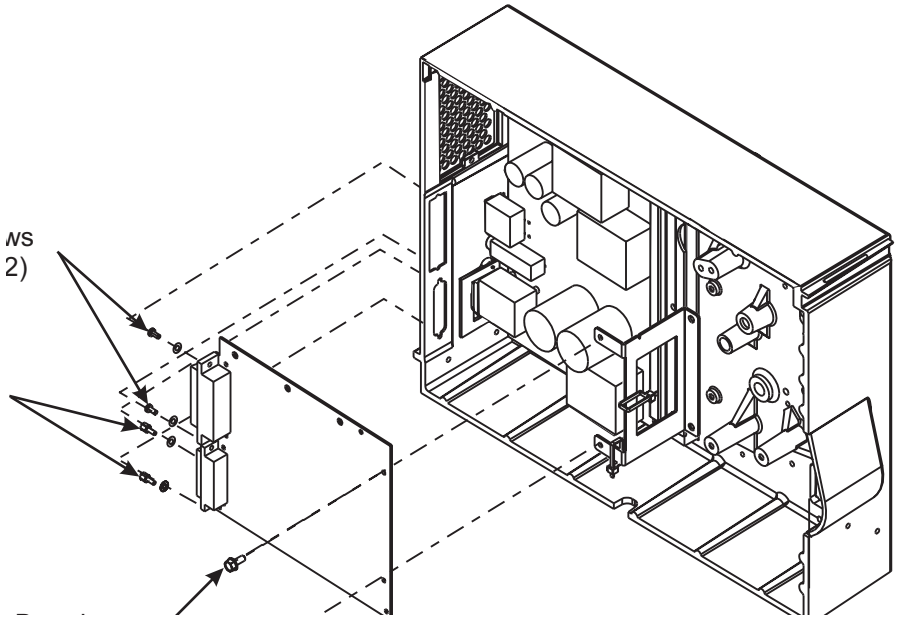


Figure 4-25. Removal and Replacement of the Main Logic Board

Install Main Logic Board

1. If PCMCIA option is installed, refer to "Installing the Memory Card (PCMCIA) Interface Option Kit" on page 4-53 and remove the PCMCIA card, the elastomic connector and the stud plate.

Note • Refer to Figure 4-26. If you are replacing the main logic board with a new one, remove flash memory from the old board and install it on the new board.

2. Install the two screws and washers that secure the parallel port connector to the rear of the printer.
3. Install the two screws and washers that secure the serial port connector to the rear of the printer.
4. Refer to Figure 4-26. Properly install all the connectors previously removed from the main logic board. Ensure the connectors are in their proper location.
5. Reinstall PCMCIA card if removed. See "Installing the Memory Card (PCMCIA) Interface Option Kit" on page 4-53.
6. Reinstall the electronics side cover to the printer and the two screws that secure it.
7. Reinstall the AC power cord.

8. Turn the printer power ON (**I**) and print a configuration label using the Cancel Key Self Test.

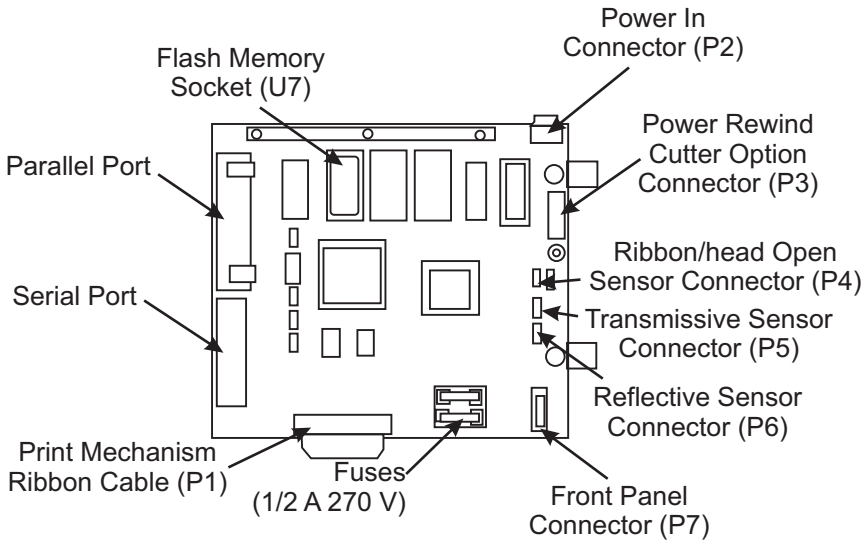


Figure 4-26. Main Logic Board Assembly Connection Locations

Replace Power Supply Board

Remove Power Supply Board

Caution • This installation must be performed by a qualified service technician.

Caution • Turn OFF (**O**) the printer and disconnect it from the power source before performing the following maintenance.

1. From the rear of the printer, turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronics cover.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

4. If PCMCIA option is installed, refer to Install Memory Card (PCMCIA) Interface option kit on page 4-53.

5. Refer to Removing Main Logic Board on page 4-30 and remove the main logic board.

Note • Place a soft cloth on your work surface.

6. Place the printer on its side, media door side down.
7. Refer to Figure 4-28. Disconnect all connectors from the power supply board.

Note • Make note of the orientation and location of all the connectors.

8. Refer to Figure 4-27. Remove the three screws and nut plate securing the main AC power connection to the main frame.
9. Remove the two screws that secure the main logic board mounting bracket and remove the mounting bracket.
10. Refer to remove ribbon take-up assembly on page 4-49 and remove the ribbon take-up spindle drive gear.
11. Refer to Figure 4-27. Remove the three screws that secure the power supply heatsink clamp to the printer. Remove the clamp, clamp pad, and insulator.

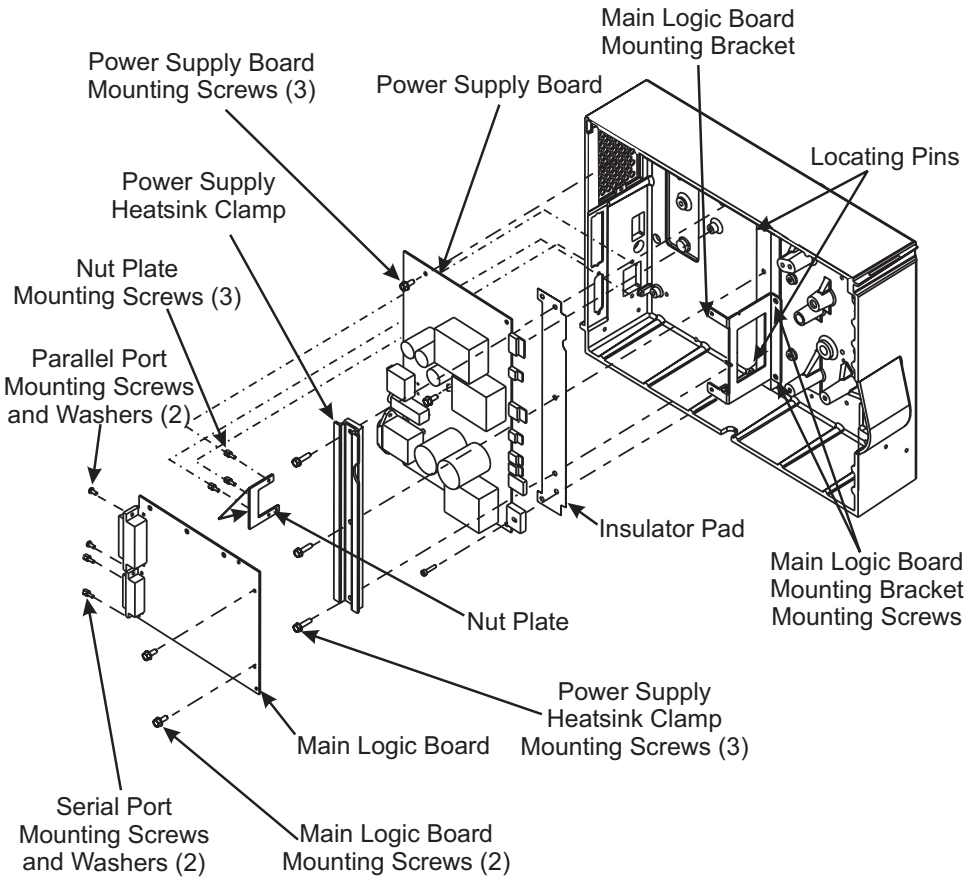


Figure 4-27. Removal and Replacement of the Power Supply Board

Caution • Verify that all cables and wires are clear before removing the power supply.

12. Refer to Figure 4-27. Remove the three screws that secure the power supply board to the printer. Remove the power supply board along with the insulator pad.

Install Power Supply Board

1. Refer to Figure 4-27. Place the insulator pad over the locating pins on the printer. Verify that all holes align with holes in the main frame.

Caution • Improper alignment or installation of this insulator pad can cause injury.

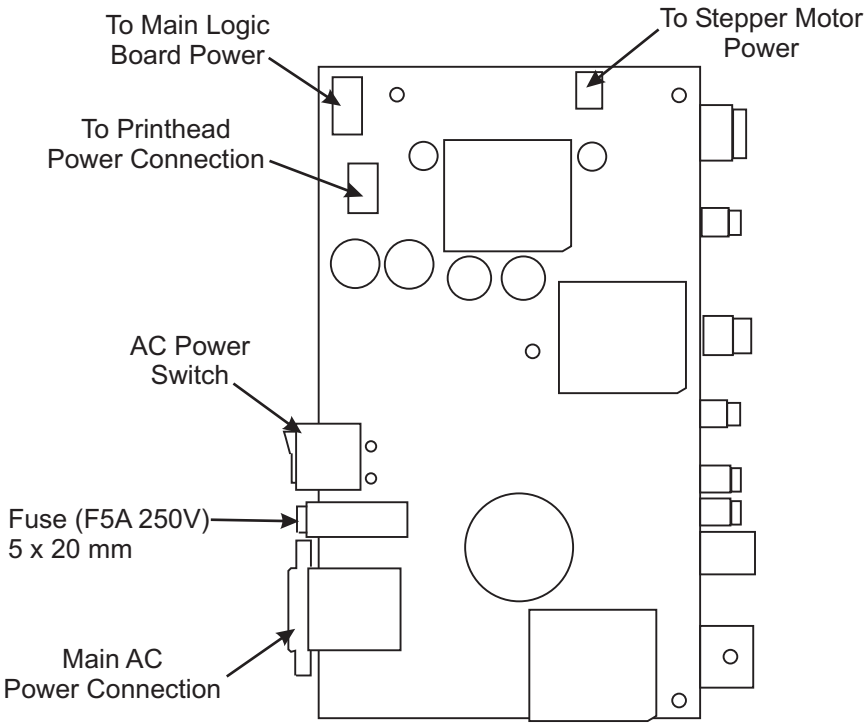


Figure 4-28. Power Supply Board Assembly Connection Locations.

Note • On new power supplies shipped from the factory, carefully break away any excess scored pieces of PCB material left to protect the components during shipping. **Caution** must be used to prevent damage to components.

2. Carefully slide the power supply board AC power switch into the opening provided, then place the power supply board onto the insulator, insulator pad, and locating pins.
3. Install, but do not tighten, the three screws securing the power supply board to the main frame.
4. Install the nut plate over the main AC input and install, but do not tighten, the three mounting screws.

5. Remove the old clamp pad and clamp insulator from the heatsink.

Note • Clamp pad and clamp insulator must be replaced on the heatsink.

6. Assemble the new heatsink, insulator and foam pad.

Caution • Improper alignment or installation of this insulator pad can cause injury.

7. Peel the protective covering off the foam pad then with the adhesive side up, set it on a flat surface.
8. Align the clamp insulator holes with the holes in the pad and set the insulator on top.
9. Align the holes and cut-out of the heatsink with the pad and insulator and then attach it to the pad.
10. Refer to Figure 4-27. Place the power supply heatsink clamp over the power supply board. Install, but do not tighten, the three screws securing the power supply heatsink clamp to the printer.
11. Evenly snug the three screws securing the heatsink clamp.
12. Tighten all other mounting screws.
13. Refer to Figure 4-28. Reinstall all the connectors previously removed from the power supply board. Ensure the connectors are in their proper location.
14. Refer to install the ribbon take-up assembly on 4-49 and reinstall the ribbon take-up gear.
15. Reinstall the main logic board mounting bracket.
16. Refer to Installing Main Logic Board on page 4-31. Install the main logic board to the printer.
17. If necessary, reinstall the PCMCIA card, refer to Installing the Memory Card (PCMCIA) Interface option kit on page 4-53.
18. Verify that the power switch is in the Off (**O**) position.

19. Refer to Figure 4-29. Set your VOM (voltage ohm meter) to the lowest ohm range and connect the meter between the main frame and the main AC input ground. The reading must be less than one ohm.

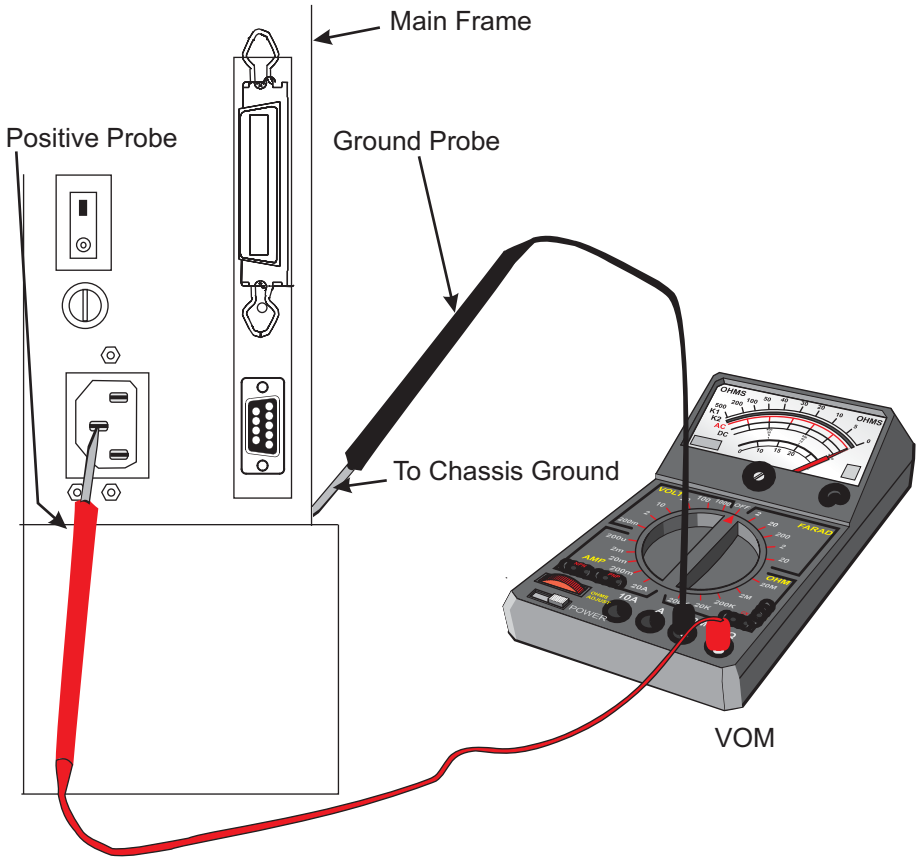


Figure 4-29. Test the Power Supply

20. Leave the AC power cord disconnected and turn the power switch On (**I**).
21. Set the VOM to the highest ohm range and measure between ground and both the return and hot terminals in the AC power module. Both readings must be in the Mega ohm to infinite range.

Caution • Stop. If the VOM readings are not as indicated, do not apply power to the printer until the source of the problem has been corrected.

22. Place the printer in the upright position and open the media door. Install the media and ribbon and close the media door.
23. Refer to Refer to Figure 4-15. Install the electronics cover by tightening the two screws that secure it.
24. Reinstall the media and ribbon, and close the media door.
25. Reconnect the AC power cord and restore power.
26. Turn the printer On (**I**).

Drive Belt Replacement

Remove Drive Belt

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-15. Open the media door and remove the two screws that secure the electronics cover to the printer. Remove the cover.

Note • Take note around which pulley of the compound pulley the belt is installed.

3. Refer to Figure 4-30. Using a hex key, loosen the stepper motor locking screw and loosen the pivot screw. Remove the drive belt from the stepper motor.

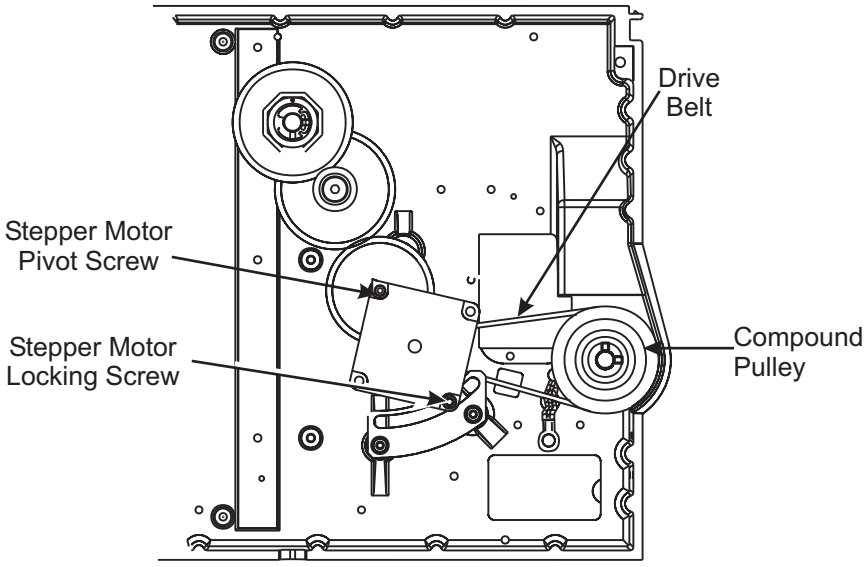


Figure 4-30. Removal of the Drive Belt

Install Drive Belt

1. Install the belt on the correct pulley of the compound pulley.
2. Lift up on the stepper motor, place the belt onto the stepper motor drive gear.

Note • Belt deflection should be no more than ¼ inch (6 mm).

3. Adjust the position of the stepper motor to achieve the correct belt deflection and tighten the locking screw to secure the motor. Tighten the pivot screw.
4. Install the electronics side cover.
5. Reconnect the AC power cord and turn the power On (**I**).
6. Print a configuration label using the Cancel Key Self Test.

Front Panel Replacement

Remove Front Panel

Caution • This installation must be performed by a qualified service technician.

Note • Print a configuration label, using the CANCEL Key Self Test, to ensure that you can configure the new front panel to your current configuration.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-15. Open the media door and loosen the two screws to remove the electronics cover.
3. Refer to Figure 4-31. Disconnect the front panel data cable from P7 on the main logic board. Note the cable routing.

Note • Caution must be used to not damage the ground cable with the mounting screw.

4. Locate the plastic grounding cable near the top of the inside surface of the main frame**.** Remove the phillips/hex head screw and washer that secure the front panel to the printer.

Note • Note the routing of the cable inside the electronics opening. The new cable must be routed exactly as the replaced one.

5. Cut the cable tie holding the panel cable to the motor wires. Disconnect the front panel ribbon cable connector from the main logic board. Remove the cable and the front panel.

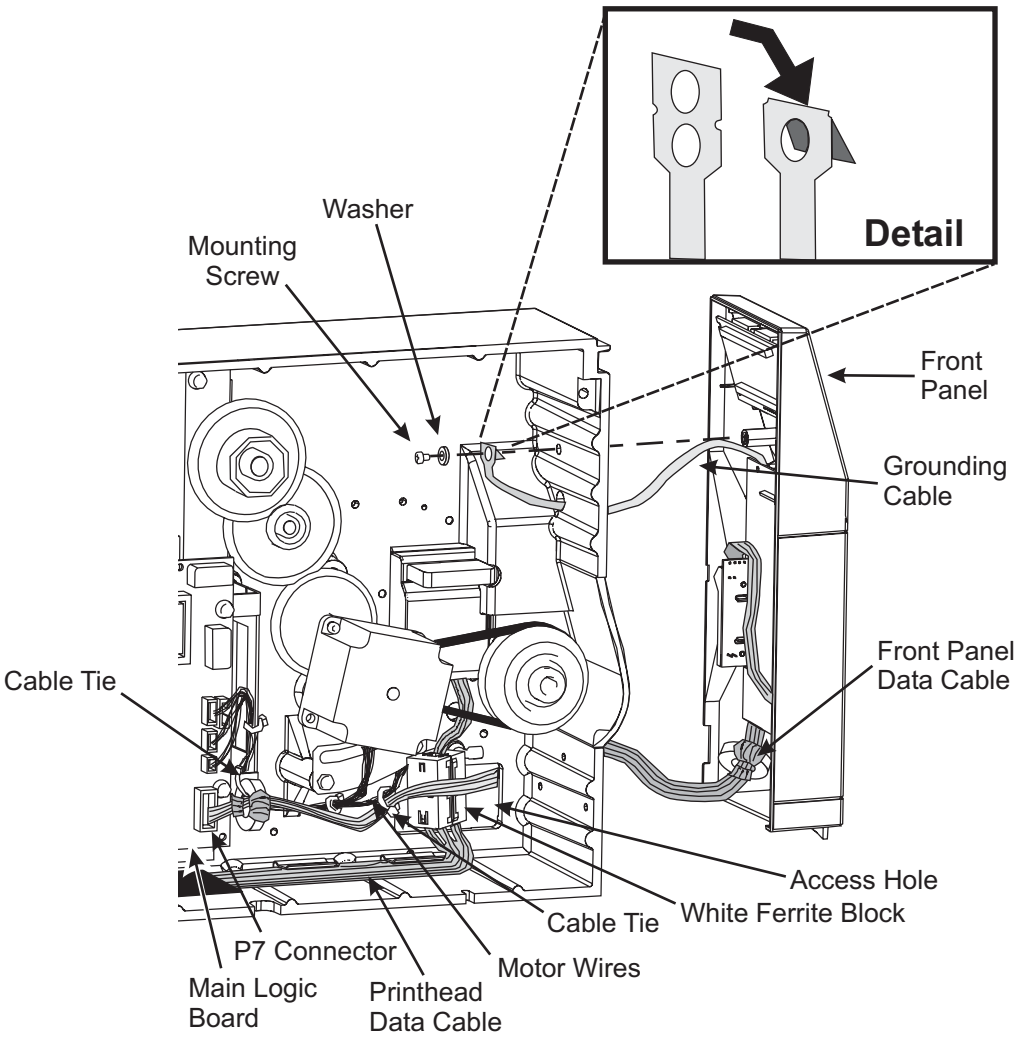


Figure 4-31. Front Panel Installation and Connector Location

Install Front Panel

Note • Make sure to route the front panel ribbon cable through the notch and away from any obstruction when replacing front panel.

1. Route the front panel ribbon cable from the new front panel into the machine. cable tie the new panel ribbon cable to the motor wires. This new ribbon cable should go around in front of the large white connector.
2. Refer to the detail in Figure 4-31 and route the new front panel ground cable through the hole into the printer.

3. Refer to the detail in Figure 4-31 and fold the flat end on the new ground cable shiny side to shiny side.

Note • Use caution when securing the front panel that the ground cable does rotate more than 1/8 turn.

4. Install the previously removed screw through the washer and ground strap. Tighten the screw to snug in the new front panel.
5. Check the wiring routing. Use cable ties as necessary to bundle and secure wires. To prevent electronic noise, ensure the ribbon cable is in the clips on the bottom of the printer. Keep the narrow ribbon cable from the control panel away from the wide ribbon cable.
6. Refer to Figure 4-15. Reinstall the electronics cover. Align the rear surface of the cover with the rear surface of the main frame. Secure with fasteners from the media side of the printer.
7. Reconnect the AC power cord to printer. Turn the printer On (**I**).
8. Set up the front panel according to the previously printed configuration label. Print a configuration label using the Cancel Key Self Test. Compare results and adjust as necessary.
9. If a configuration label could not be printed before removing the old front panel, perform the label quality procedure in your User Guide.

Replace Dancer Assembly

Remove Dancer Assembly

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-15. Open the media door and remove all media and ribbon from the printer.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

3. Refer to Figure 4-32. Relieve the spring tension from the dancer assembly by using a long nose pliers and moving the torsion spring leg off the printer post.
4. Remove the E-ring, then slide off the bearings, the dancer, and the torsion spring.

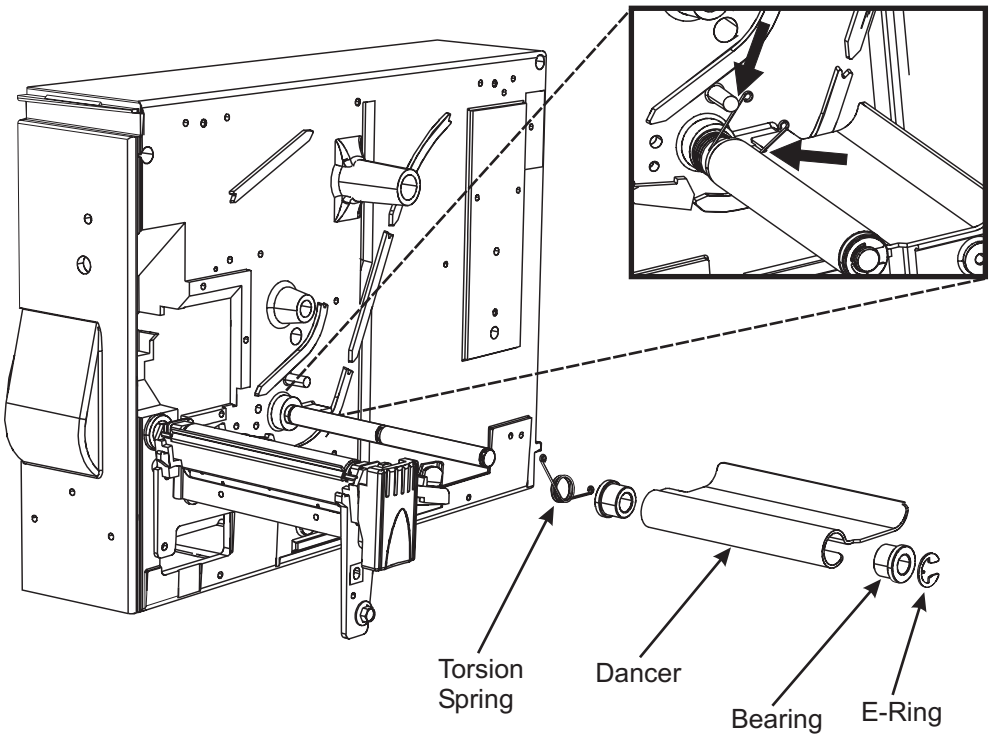


Figure 4-32. Dancer Assembly

Installing the Dancer Assembly

1. Install the new torsion spring, the first bearing, the dancer, the second bearing, and then the e-ring.
2. Place the dancer assembly torsion spring back to its operating position against the printer post and dancer tab. Check to make sure there is tension on the dancer assembly.
3. Reload the media and ribbon. Close the media door and reconnect power to the printer.
4. Turn the printer On (**I**) and print a configuration label.

Ribbon/Head Open Sensor Replacement

Removing the Ribbon/Head Open Sensor Assembly

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.

3. Refer to Figure 4-15. Remove the electronics side cover by removing the two screws that secure the cover to the printer.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

4. Refer to Figure 4-33. Loosen and remove the screw that secures the ribbon/head open sensor assembly. On the electronics side, cut the cable ties that hold the ribbon/head open sensor assembly wires along with other wires up to the main logic board.
5. Refer to Figure 4-34. Disconnect the ribbon/head open sensor assembly connector from the main logic board and feed the wires with the connector through the access hole in the frame.

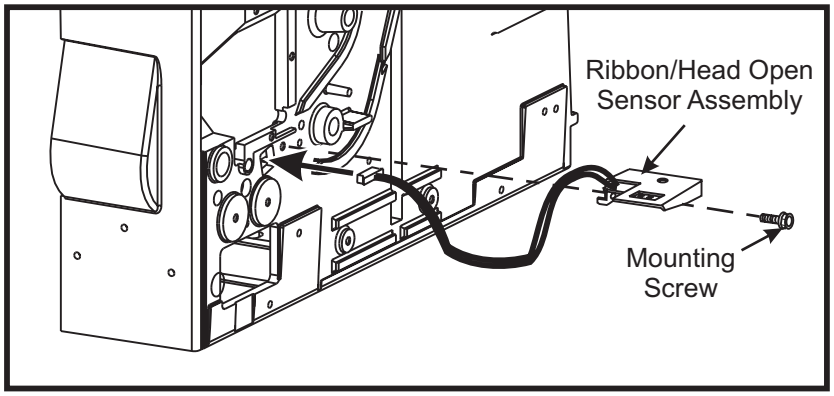


Figure 4-33. Ribbon/Head Open Sensor Assemble and Disassemble

Installing the Ribbon/Head Open Sensor Assembly

1. Refer to Figure 4-33. Feed the sensor cable through the opening in the main frame. Attach the sensor to the main frame with the screw previously removed. Do not tighten the mounting screw until the sensor gap is established.

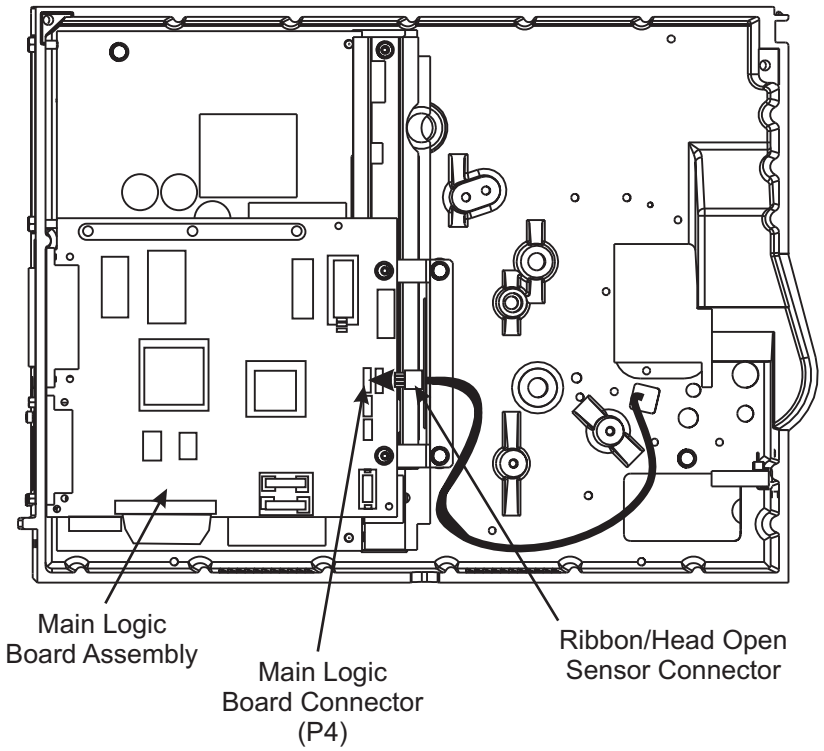


Figure 4-34. Ribbon/Head Open Connection to Main Logic Board

2. Refer to Figure 4-34. Reconnect the ribbon/head open sensor connector to the main logic board (P4). Install new tie wraps in the same locations as previously removed.
3. Refer to Figure 4-34. Using a 0.060 inch (1.5 mm) feeler gauge, check the distance between the ribbon/head open sensor assembly and the printhead mechanism assembly when closed. Once this distance is achieved, tighten the mounting screw.
4. Install the electronics cover. Reinstall media and ribbon back into the printer. Close the media door and reconnect power to the printer.
5. Turn the printer On (**I**) and unlatch the printhead mechanism. Look at the front panel to ensure the error LED flashes. Close and latch the printhead mechanism and print a configuration label using the Cancel Key Self Test to ensure the sensor and printer work properly.

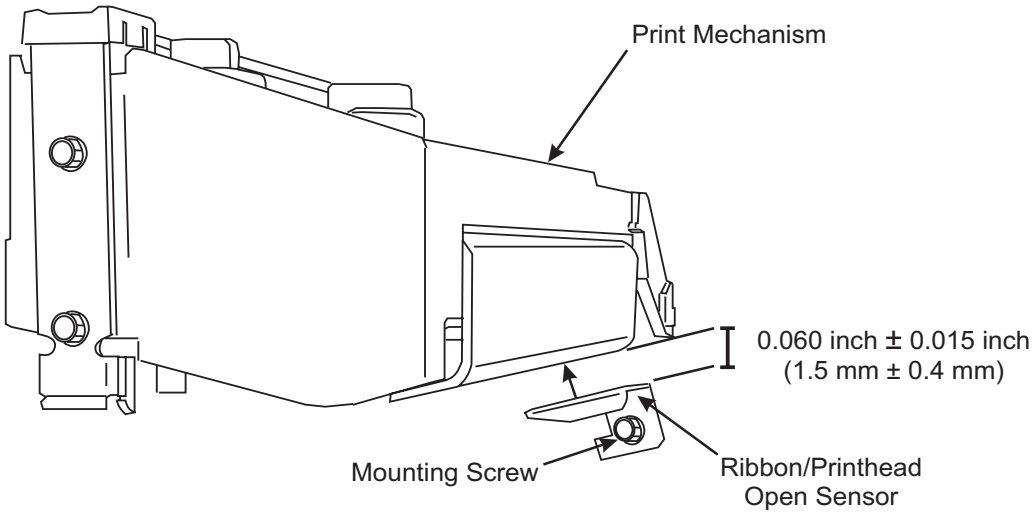


Figure 4-35. Ribbon/Printhead Sensor Gap

(Transmissive) Sensor Replacement

Remove Transmissive Sensor

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove all media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronics cover by removing the two screws that secure the cover to the printer.

Note • It may not be necessary to remove the stepper motor.

4. Refer to Figure 4-30. Using a hex key, loosen the stepper motor mounting screw. Make note on where the drive belt is positioned on the platen pulley and swing the stepper motor up to remove the drive belt.
5. Using a hex key, remove the stepper motor pivot screw. Remove the stepper motor to gain access to the transmissive sensor mounting screw.
6. On the electronics side, cut the cable ties that hold the transmissive sensor assembly wires along with other wires up to the main logic board.

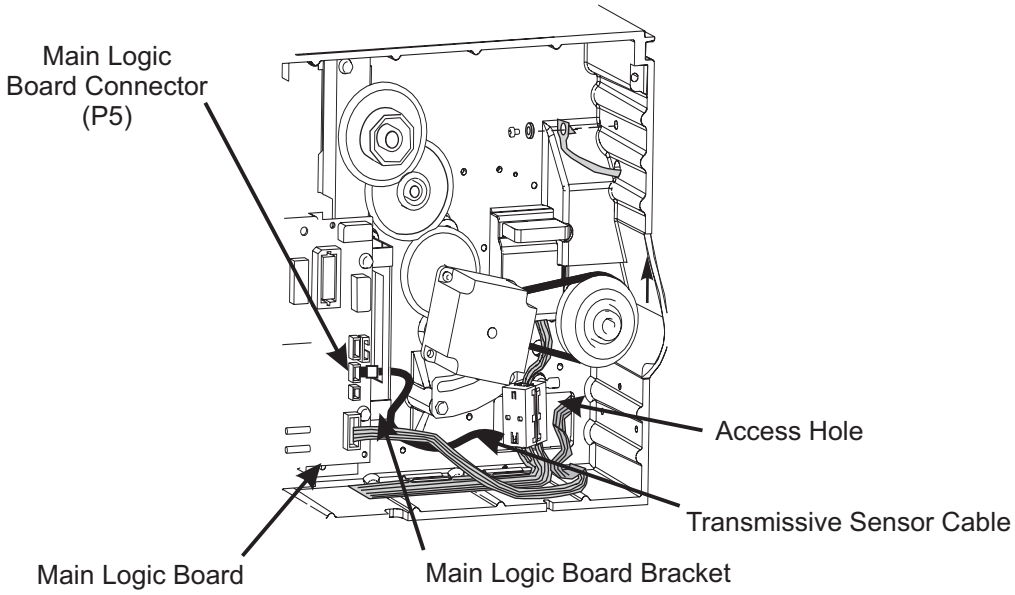


Figure 4-36. Transmissive Sensor Assembly Connection

7. Refer to Figure 4-37. While using the phillips screwdriver, loosen and remove the transmissive sensor mounting screw and sensor.
8. Remove the transmissive sensor connection on the main logic board.

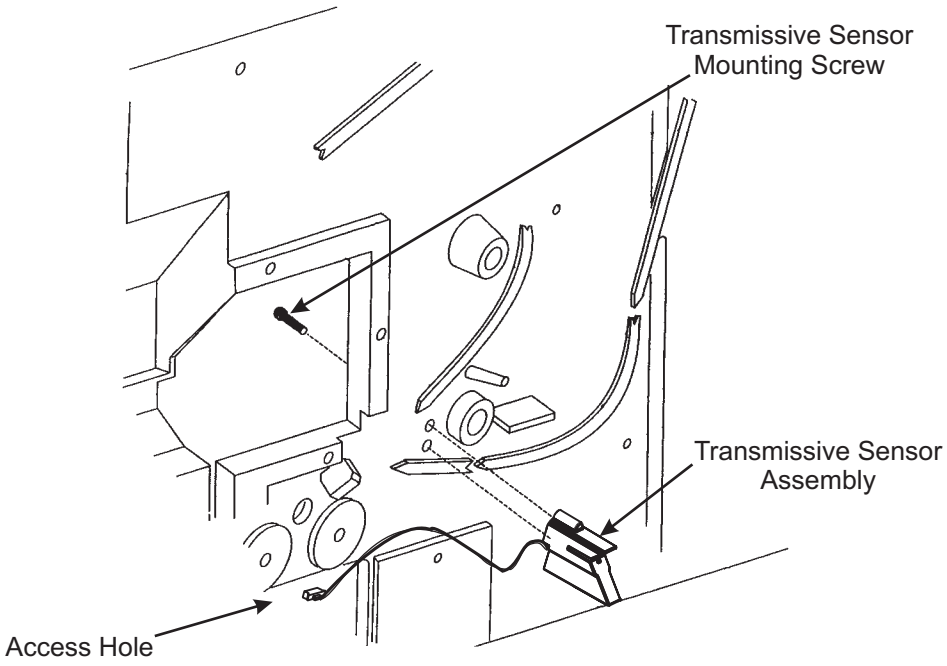


Figure 4-37. Installing the Transmissive Sensor Assembly

Install Transmissive Sensor

1. Feed the sensor cable through the opening under the printhead assembly as shown in Figure 4-37.
2. Install the sensor to the main frame. Make sure the guide pin of the sensor body seats in the lower hole for proper positioning.

Note • Do not overtighten the mounting screw. Damage to the transmissive assembly housing can occur by overtightening the mounting screw.

3. Refer to Figure 4-36. Locate (P5) connection on the main PC board and plug in the transmissive sensor assembly connector. Route the cable as shown and secure it to the main logic board bracket using the cable tie supplied in the kit.
4. Secure the transmissive sensor assembly with the mounting screw.
5. Reinstall the gear, making sure the gears mesh properly.
6. Loosely reinstall the stepper motor using the pivot screw, locking screw and adjustment nut.

Note • Belt deflection should be no more than ¼ inch (6 mm).

7. While lifting up on the stepper motor, reinstall the drive belt. Release the stepper motor to provide tension on the belt.
8. Make sure belt tension is correct and tighten the locking screw to secure the motor. Tighten the pivot screw.
9. Replace the electronics cover. Place media and ribbon back into the printer. Close the media door. Reconnect the AC power cord.
10. Turn the printer On (**I**) and follow the “Selecting the Media Sensor” instructions in the User Guide.

Replace (Reflective) Media Sensor

Remove (Reflective) Media Sensor Assembly

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronics cover by removing the two screws that secure the cover to the printer.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

4. Refer to Figure 4-38. Cut the cable ties that hold the media sensor wires along with other wires up to the main logic board. Disconnect the media sensor connector from the main logic board and feed the wires with the connector through the access hole in the frame.

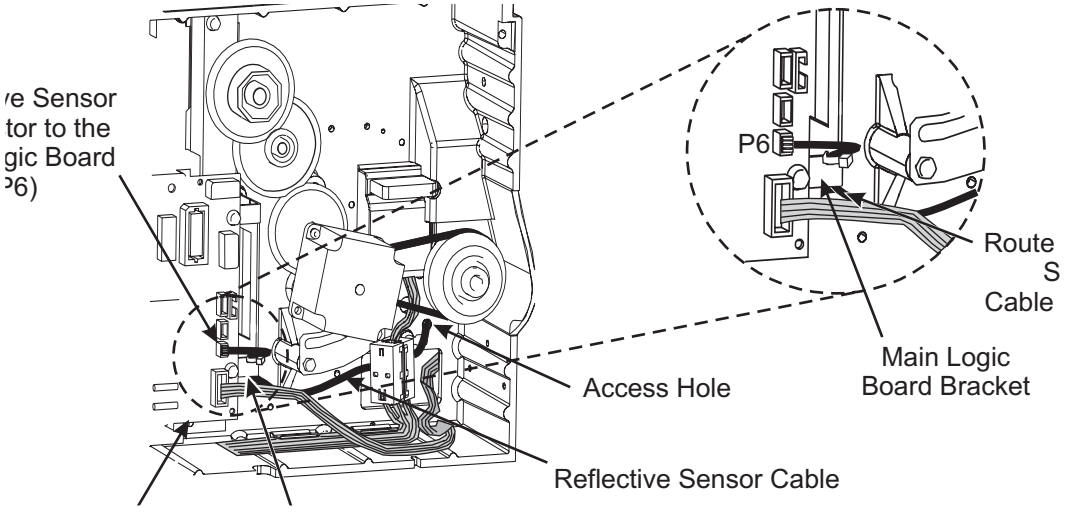


Figure 4-38. (Reflective) Media Sensor Connection to Main Logic Board

5. Cut the cable ties that holds the media sensor wires inside the wireway of the platen roller assembly. Gently snap off the platen assembly latch cover.
6. Slide the media sensor carrier all the way out until it stops, gently press down on the carrier and slide the carrier out until it drops off the platen casting.
7. Refer to Figure 4-39. Locate the two tabs that hold the media sensor to the carrier. Gently pull out on the tabs to release the sensor from the sensor carrier. Remove the sensor along with the insulator, spring, button, wires, and connector.

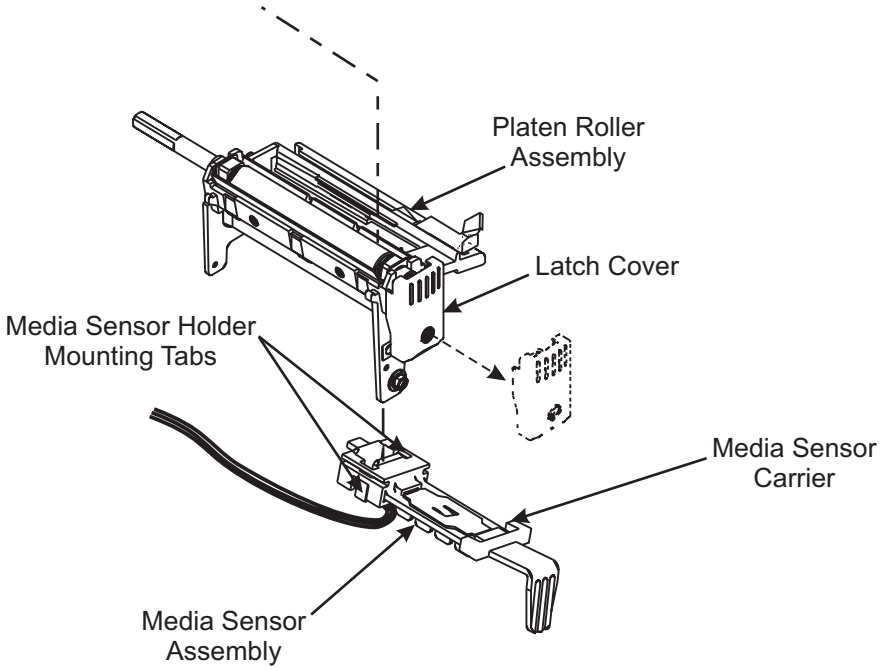


Figure 4-39. Media Sensor Removal

Install Media Sensor Assembly

1. Refer to Figure 4-39. Install the new media sensor assembly into the carrier by snapping the sensor portion into the carrier. Ensure that the button, spring and insulator have the proper spring action by pressing down on the button and releasing it.
2. Route the media sensor wires through the wireway on the platen roller assembly and through the access hole in the printer frame. Replace cable ties that have been previously cut. Connect the media sensor connector to the main logic board at P6.

Note • Make sure to loop the wire harness inside the platen roller assembly wireway. There should be no twists in the wire harness in the wireway. Ensure that the media sensor assembly can travel its entire route.

3. Start the media sensor carrier through the slots provided on the platen roller assembly. Gently press down on the media sensor carrier and push the carrier past the stop.
4. Release the carrier and push it back and forth to make sure it travels its entire route on the platen housing tracks. Reinstall the platen assembly latch cover.
5. Install the electronics cover. Replace media and ribbon in the printer and close the media door. Reconnect power cord to the printer.
6. Turn the printer On (**I**) and print a configuration label using the Cancel Key Self Test.

Replace Ribbon Take-Up Assembly

Remove Ribbon Take-Up Assembly

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronic cover by loosening and removing the two screws that secure the cover to the printer.
4. Refer to Figure 4-40. Use a hex key to loosen the two set screws on the ribbon take-up collar that secure the collar to the shaft. Slide the collar, plastic thrust washer, gear clutch assembly and washers off the shaft. Remove the ribbon take-up assembly and washer.

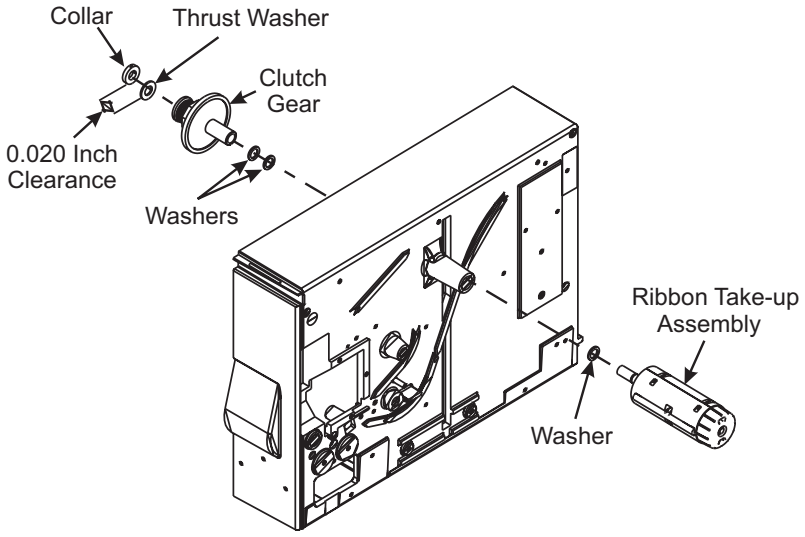


Figure 4-40. Ribbon Take-Up Assembly/Disassembly

Install Ribbon Take-Up Assembly

1. Slide the ribbon take-up assembly and washer through the bearings on the printer. Place the washers, gear clutch assembly, plastic thrust washer and collar onto the end of the ribbon take-up assembly shaft. Make sure the gear clutch assembly gear meshes with the other compound gear.
2. Place a 0.020 inch feeler gauge between the thrust washer and the collar. Push in on the other side of the ribbon take-up assembly and tighten the two screws on the collar to secure the ribbon take-up assembly. Make sure the ribbon take-up assembly turns freely.
3. Replace the electronics cover.
4. Reinstall media and ribbon into the printer and close the media door.
5. Reconnect power cord to the printer and restore power.
6. Turn the printer On (**I**) and print a configuration label using the CANCEL Key Self Test.

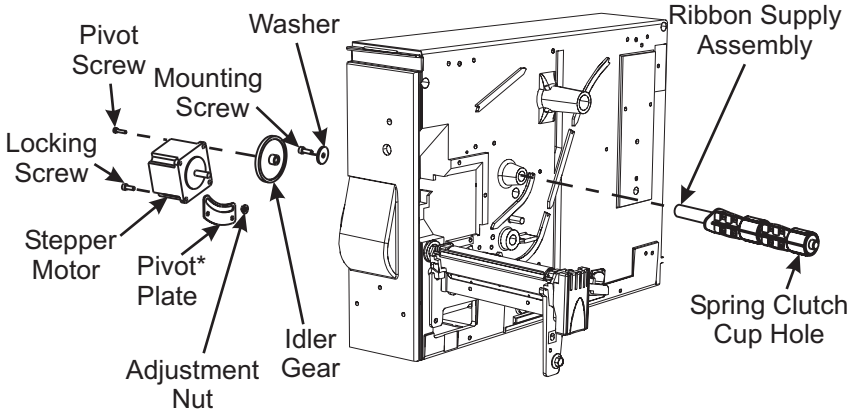
Replace Ribbon Supply Assembly

Remove Ribbon Supply Assembly

Caution • This installation must be performed by a qualified service technician.

Refer to Figure 4-41.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Refer to Figure 4-15. Remove the electronics cover by removing the two screws that secure the cover to the printer.
4. Using a hex key, loosen and remove the stepper motor pivot screw.
5. Remove the stepper motor locking screw and nut.
6. Remove the stepper motor, belt and the idler gear.
7. Remove the ribbon supply assembly mounting screw and washer.
8. Slide the ribbon supply assembly from the printer.



* Pivot plate shown for reference only.

Figure 4-41. Ribbon Supply Assembly/Disassembly

Install Ribbon Supply Assembly

Refer to Figure 4-41.

1. Slide the ribbon supply assembly into the printer. Replace the washer and mounting screw onto the shaft. Check the spindle assembly for no end play.
2. Reinstall the idler gear, making sure the gears mesh properly.

3. Loosely reinstall the stepper motor using the pivot screw, locking screw and adjustment nut.

Note • Belt deflection should be no more than ¼ inch (6 mm).

4. While lifting up on the stepper motor, reinstall the drive belt. Release the stepper motor to provide tension on the belt.
5. Adjust the position of the stepper motor to achieve the correct belt deflection and tighten the locking screw to secure the motor. Tighten the pivot screw.
6. Reinstall the electronics cover.
7. Place media and ribbon back into the printer and close the media door.
8. Reconnect power cord and restore power.
9. Turn the printer power On (**I**) and print a configuration label using the Cancel Key Self Test.

Options

Install Flash Memory Option

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-15. Open the media door and remove all media and ribbon from the printer. Remove the two screws that secure the electronics cover to the printer.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

3. Remove the electronics cover. Close the media door.

Note • Place a soft cloth on your work surface.

4. Place the printer down on the media side cover to expose the electronics side.
5. Refer to Figure 4-42. Locate the flash memory socket on the main PC board (U7)
6. Refer to Figure 4-43. To open the socket slide #1 to right then lift #1 and #2. The chip is now accessible.

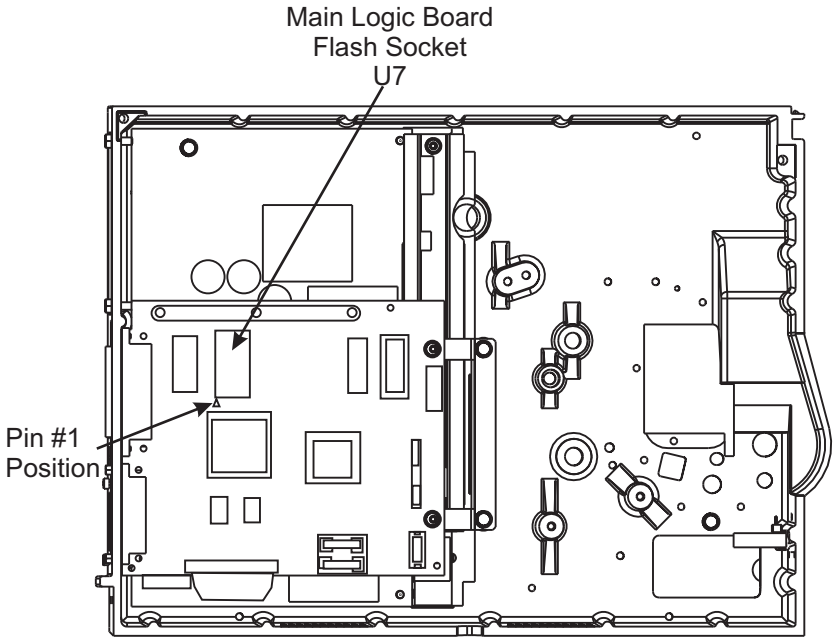


Figure 4-42. Flash Memory Socket Location

Caution • Pin #1 on the memory chips may vary from different manufacturers. Please check the manufacturer's documentation to ensure proper #1 position when installing memory chips. Improper positioning may cause damage to the chip and to the printer.

Caution • Exercise caution when handling the memory chip. Bent leads due to improper handling may cause damage to the chip and printer.

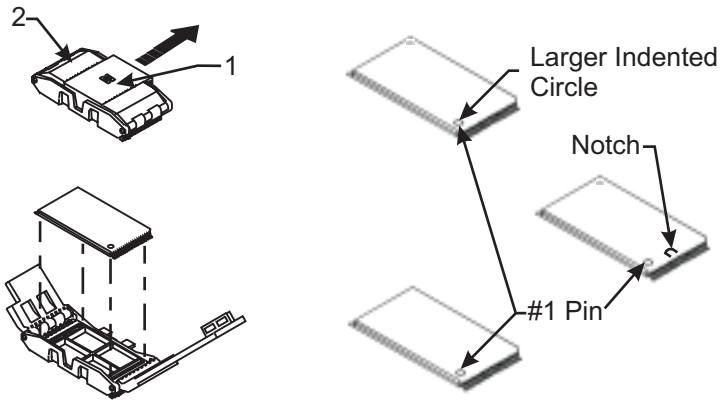


Figure 4-43. Flash Chip Socket

Note • Locate position #1 on the socket and position #1 on the chip. The #1 pin on the chip is identified by a circle near the corner of the chip. Some chip manufactures have two circles on the chip. The #1 pin in this case is the one on the same side as the notch on the chip.

7. Place the flash memory chip inside the socket as shown.
8. Close socket and slide #1 to the left until it snaps in place.
9. Place the printer in the upright position. Replace the electronics cover and tighten the two screws to secure the cover to the printer.
10. Reinstall media and ribbon and close the media door.
11. Reinstall the AC power cord and restore power.
12. Turn the printer On (**I**) and print a configuration label to ensure that the flash memory chip is recognized.

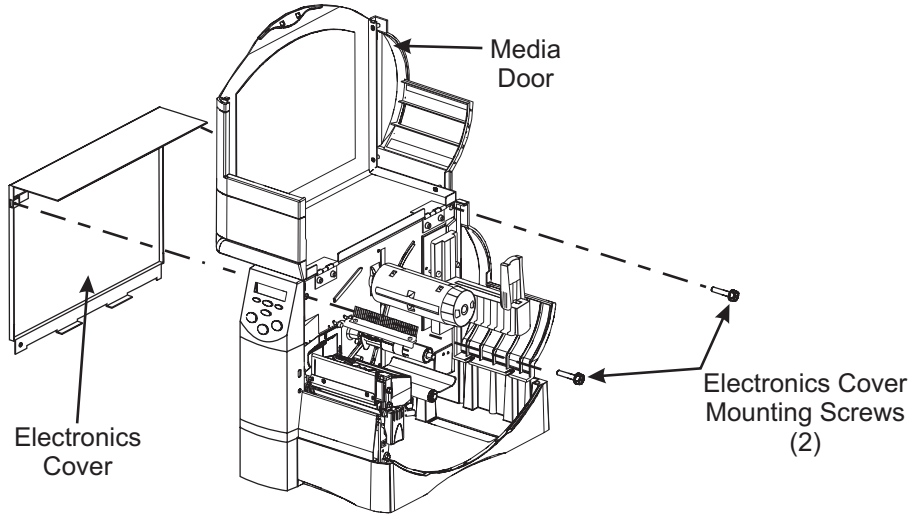
Install Memory Card (PCMCIA) Interface Option Kit

Caution • This installation must be performed by a qualified service technician.

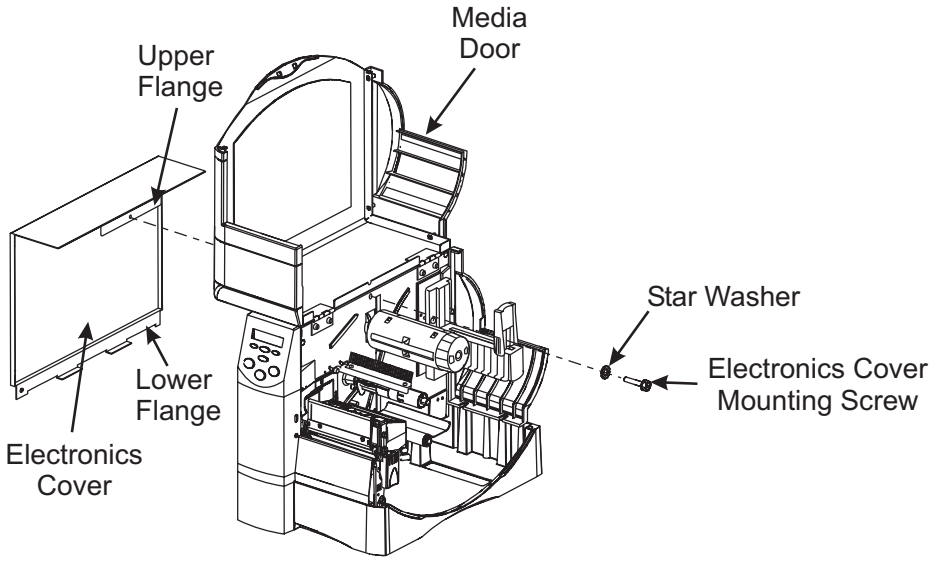
1. Turn the printer Off (**O**) and disconnect the AC power cord.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

2. Refer to Figure 4-44. Open the media door, loosen the two screws that secure the electronics cover to the printer. Remove the electronics cover.



Early Version Z4M/Z6M



Current Version Z4M/Z6M

Figure 4-44. Electronics Cover Removal

3. Refer to Figure 4-45. Remove and retain the two screws that secure the back cover on the printer and then remove the cover.

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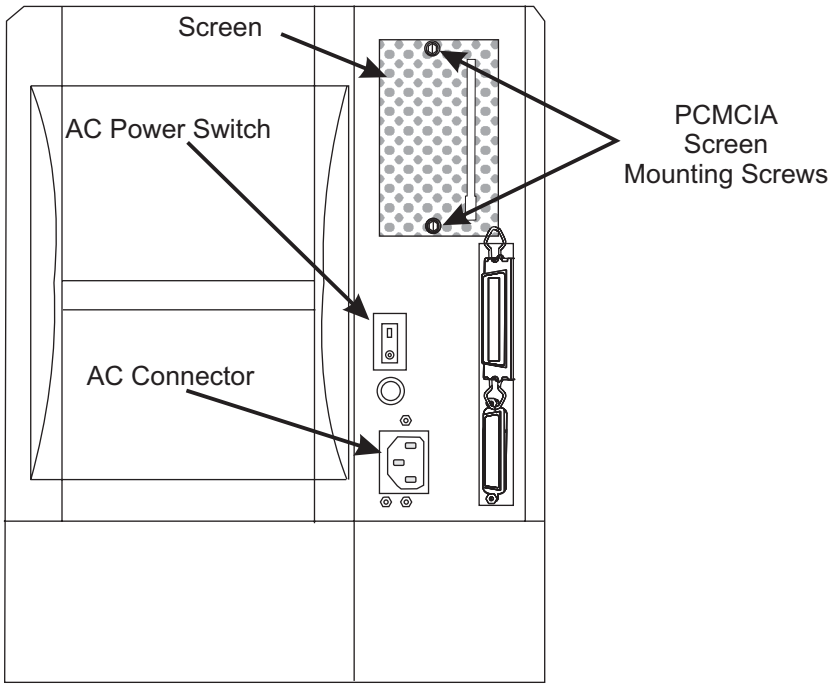


Figure 4-45. Back Cover Mounting Screws

4. Refer to Figure 4-46. Remove and retain the nearest to the top left corner of the power supply and replace it with the standoff supplied with the kit.

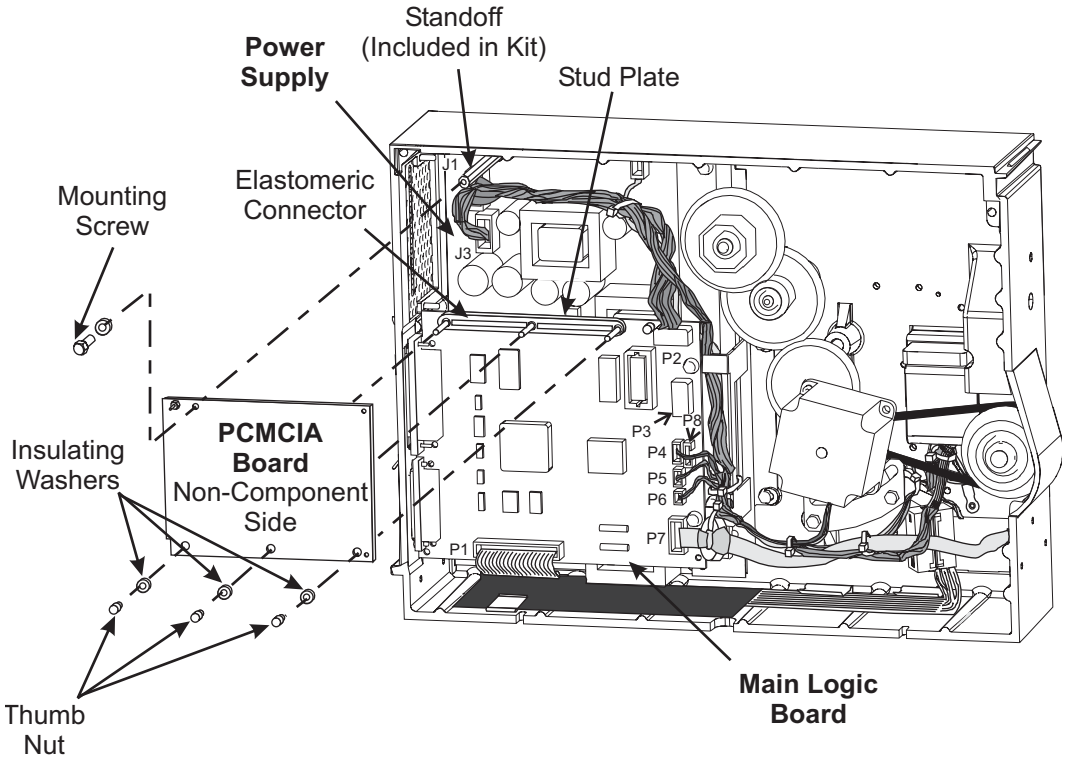


Figure 4-46. Standoff Mounting Location

5. Refer to Figure 4-47. From behind the main PC board assembly, place the stud plate through the three holes on the main PC board assembly. Also from behind the main PC board, push the temporary fastener through the aligning hole on the right hand side, as shown.

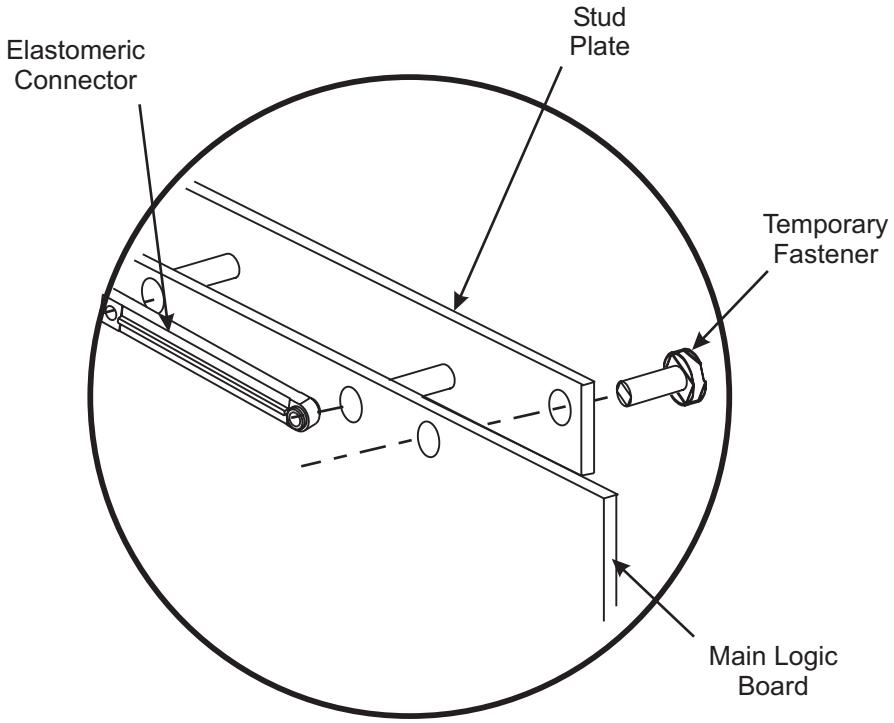


Figure 4-47. Elastomeric Connector and Stud Plate Installation

Refer to Figure 4-48.

Note • The boss around each hole in the elastomer connector is designed to create a tight fit to the main logic board and the PCMCIA board. When installing the elastomer connector, ensure that the bosses are seated in all the holes.

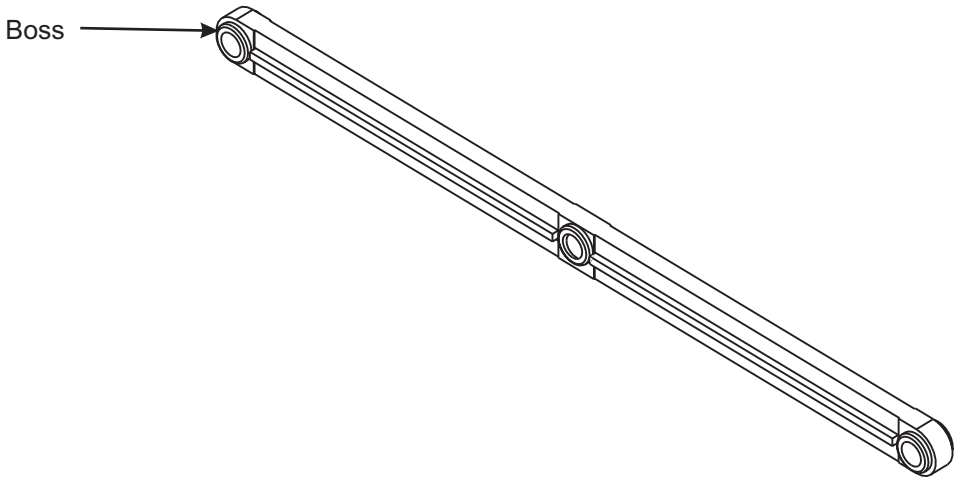


Figure 4-48. Boss Location on Elastomeric Connector

6. Refer to Figure 4-46. Place the elastomeric connector over the stud plate. Place the PCMCIA board against the elastomeric connector. Make sure the connector is fully seated and both conductive elements are in place.

Note • Make sure the elastomeric connector is fully seated between the PCMCIA board and the main PC board. If the connector is not fully seated, the PCMCIA option will not function.

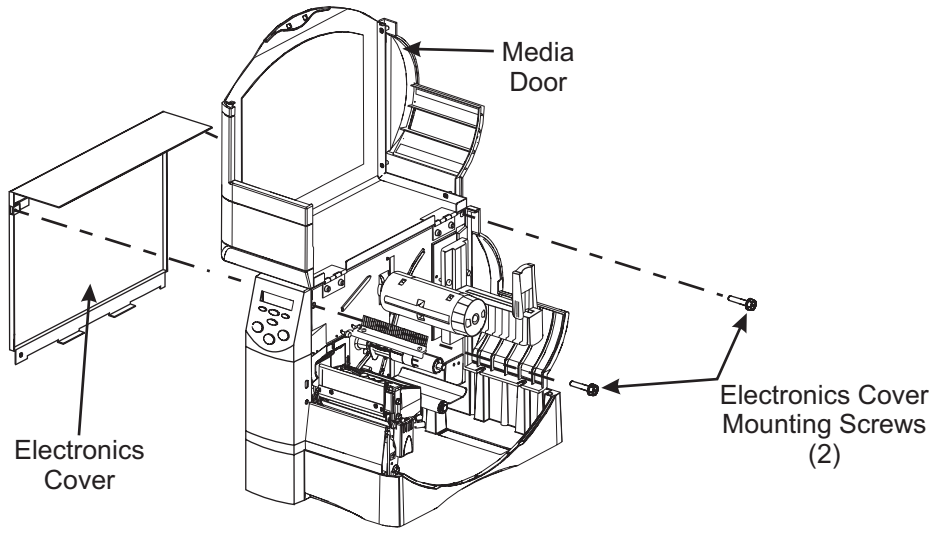
7. Refer to Figure 4-46. Once the alignment is achieved and the connector is fully seated, secure the PCMCIA board to the main PC board using the washers and thumb nuts supplied in the kit.
8. Using the screw previously removed from step 4, secure the PCMCIA board to the standoff.
9. Refer to Figure 4-45. Secure the new cover with the two screws previously removed.
10. Place the PCMCIA card into the cover slot to ensure the card fits into the PCMCIA board with no obstruction.
11. Reinstall the electronics cover and tighten the two screws to secure the cover to the printer.
12. Reinstall media and ribbon and close the media door.
13. Reinstall the AC power cord and restore power.
14. Turn the printer On (**I**) and print a configuration label (Cancel Key Self Test) to ensure the printer recognizes PCMCIA option.

If the configuration label does not show **"Installed……B: Memory"**, remove the electronics side cover and loosen the three thumbnails and the standoff mounting screw. Realign the elastomeric connector to both board assemblies then retighten the thumbnails. Run another Cancel Key Self Test to ensure proper connection.

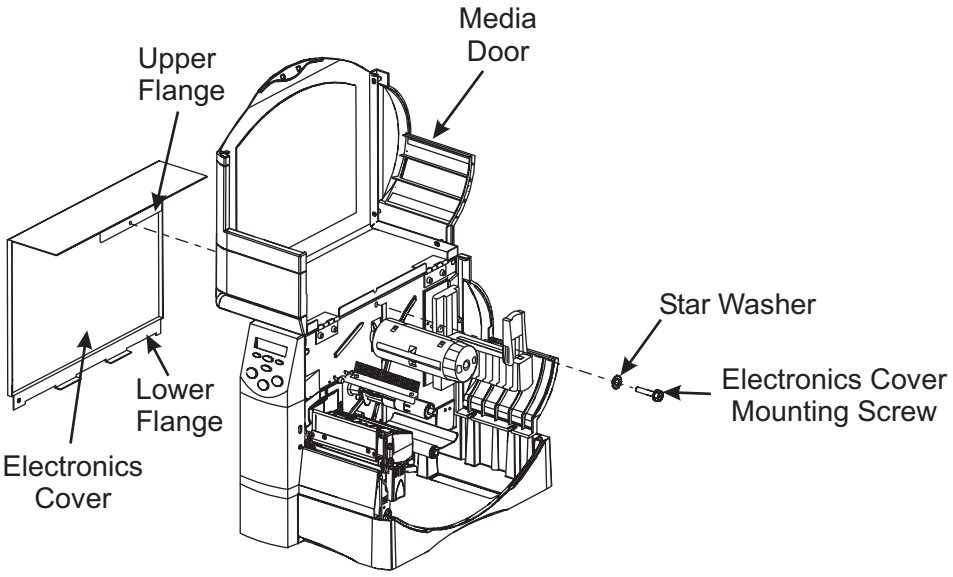
Install Cutter Option

Caution • This installation must be performed by a qualified service technician.

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-49. Open the media door and remove media and ribbon from the printer.
3. Remove the electronics cover by removing the two mounting screws. Remove the electronics cover.
4. Carefully remove the plastic latch cover. Slide the front cover to the right, then lift to remove.



Early Version Z4M/Z6M



Current Version Z4M/Z6M

Figure 4-49. Front Cover and Electronics Cover Removal

5. Reinstall the latch cover.
6. Refer to Figure 4-50. Locate the cutter assembly in the kit. Verify that the mounting bracket is installed properly, with the “M” in the correct position. If not, loosen the center screw and rotate the bracket until the “M” is in the proper position.

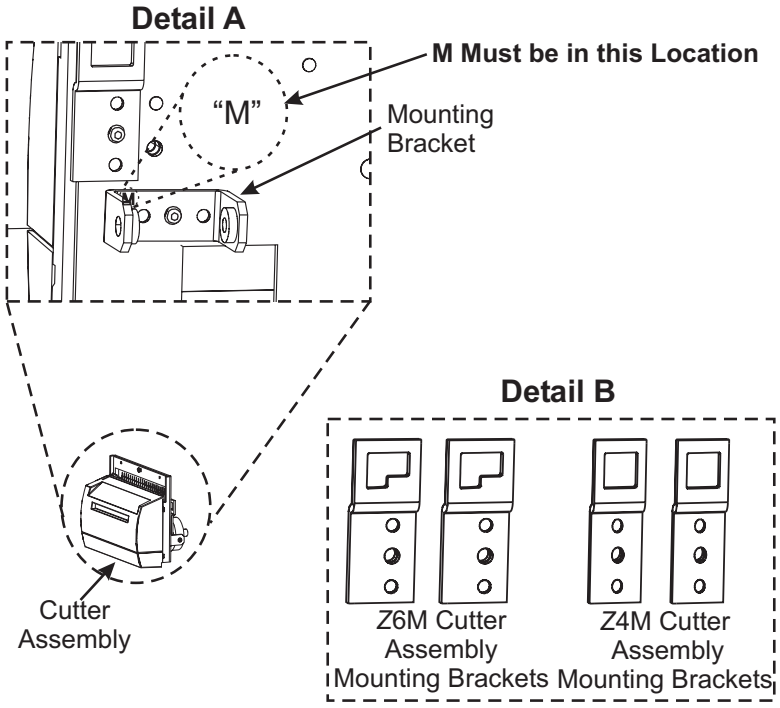


Figure 4-50. Mounting Bracket Location and Position

7. Refer to Figure 4-51. While holding the cutter assembly, route the cutter assembly wire harness through the main frame access hole.

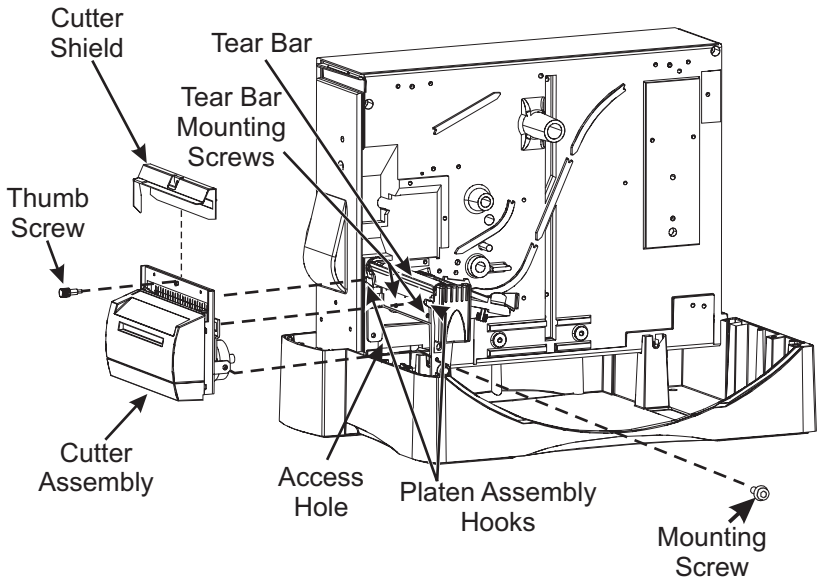


Figure 4-51. Installing the Cutter Assembly (*Z*4M Shown)

8. Install the cutter assembly on the hooks of the platen housing. The Z6M brackets have step slots. Hold the cutter assembly as far to the left as possible, align the larger part of the slot with the hooks on the platen housing. Slide the cutter assembly onto the hooks then push down and slide the assembly to the right.

9. Secure the cutter assembly onto the platen assembly. The mounting bracket tab on the cutter fits behind and attaches to the platen assembly leg, using the screw provided to secure it to the platen housing assembly.
10. Refer to Figure 4-52. Place the cutter shield over the cutter assembly and secure in place using the thumb screw provided.

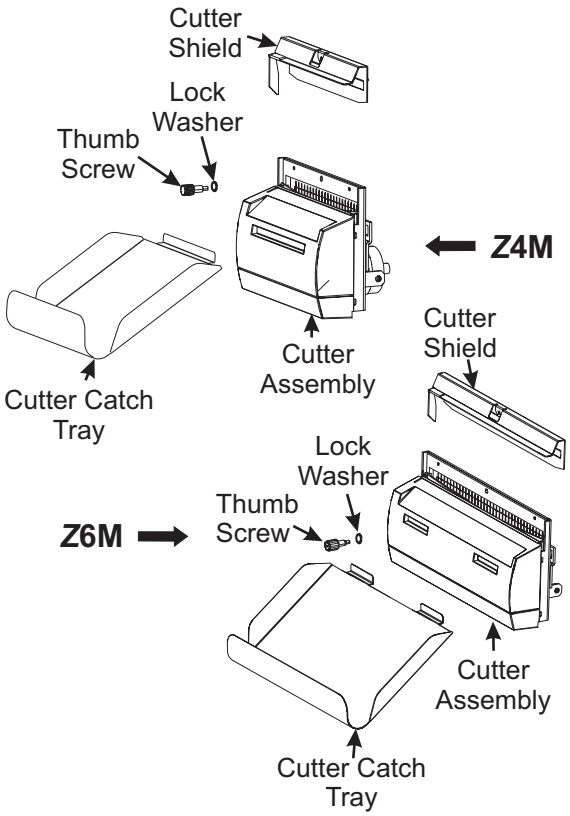


Figure 4-52. Cutter Shield and Catch Tray

11. Place catch tray in slot or slots in front cover of cutter assembly.
12. Refer to Figure 4-53. Locate P3 on the main logic board and plug in the cutter assembly connector. Route the cable as shown, taking care to route it away from the drive belt and gears.

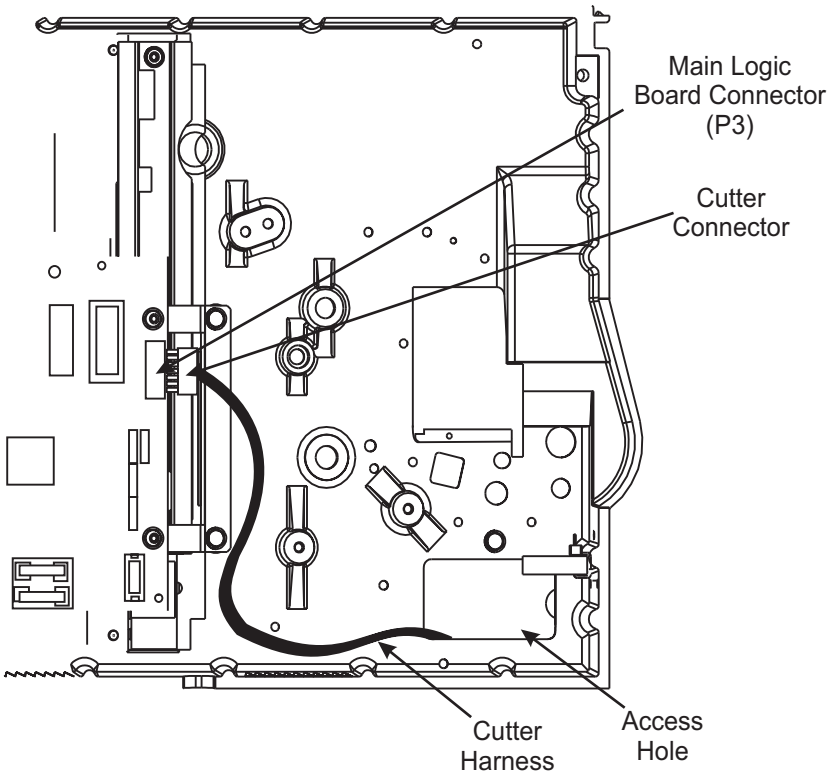


Figure 4-53. Cutter Option Connector Location on Main Logic Board

13. Reinstall the electronics side cover and secure with the two screws previously removed.
14. Reinstall media and ribbon and close the media door.
15. Reinstall the AC power cord and restore power.

Install Value Peel Option

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove the ribbon and media.
3. Refer to Figure 4-54. Carefully remove the plastic latch cover.
4. Slide the front cover to the right, then lift to remove.

Note • If there is an existing value peel assembly, it must be removed. If a value peel assembly is not currently installed the tear bar must be removed.

5. Refer to Figure 4-55. Remove the tear bar and discard the mounting screws.

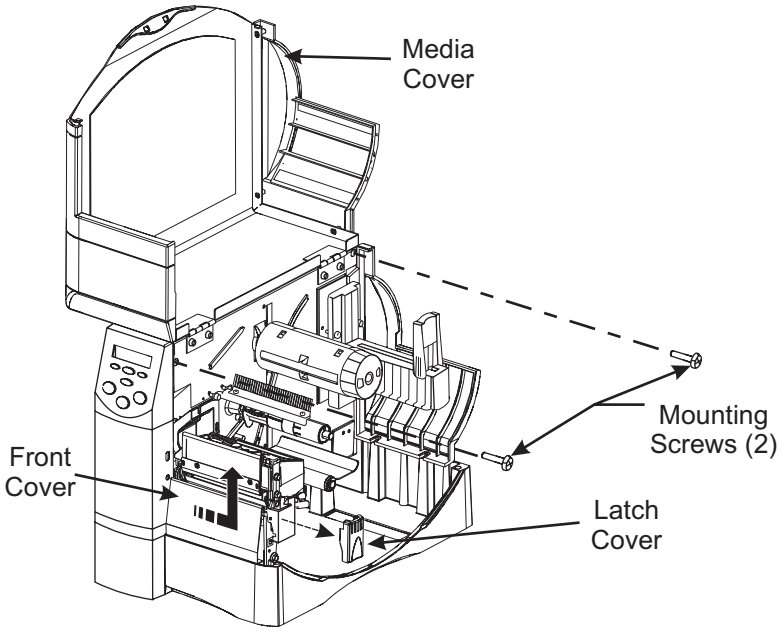


Figure 4-54. Removal of Front and Latch Cover

6. Refer to Figure 4-57. Remove existing value peel assembly.
7. Refer to Figure 4-51. Remove existing cutter assembly.
8. Using the supplied hex key, install the two flanged mounting screws from the kit into the tear bar mounting screw holes. Tighten them to within 1/8 inch of the platen housing.
9. Refer to Figure 4-56. Take note of the pems and the mounting slots on the rear of the value peel assembly.

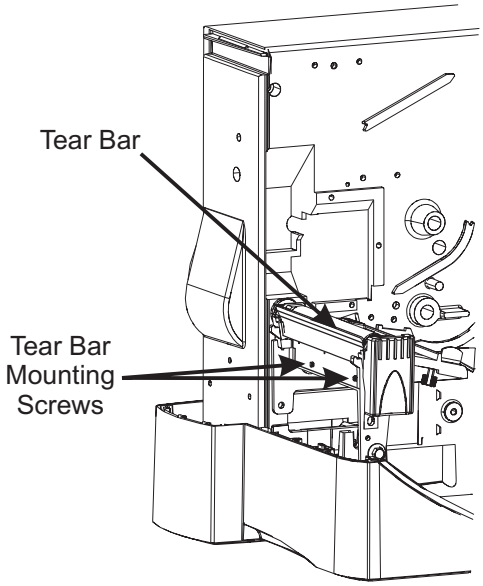


Figure 4-55. Tear Bar Removal

10. Refer to Figure 4-57. Install the value peel assembly with the pems to the rear and the opening in the mounting slot to the top. Insert the mounting slot opening over the two screws and lift up on the assembly. Now push the assembly back against the vertical surface of the platen assembly then down so that pems are resting on the horizontal surface of the platen housing.

Value Peel Assembly

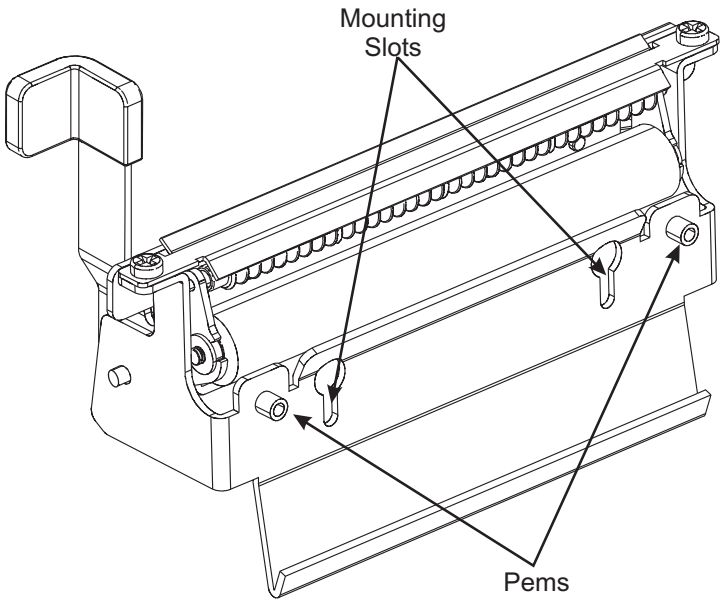


Figure 4-56. Rear of Value Peel Assembly

11. Maintain a slight pressure downward on the value peel assembly to keep pems on the horizontal surface, and tighten the mounting screws.

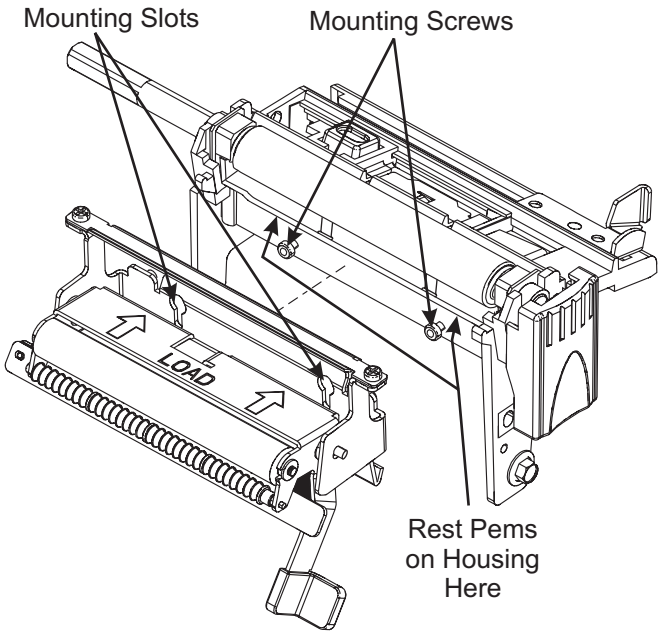


Figure 4-57. Installing and Removing Value Peel Assembly

12. Refer to Media Loading, Value Peel, on page 2-29 for instructions on loading ribbon and media.

Install Liner Take-up Option

Caution • This installation must be performed by a qualified service technician.

The Liner Take-up Assembly Kit is shown in Figure 4-58.

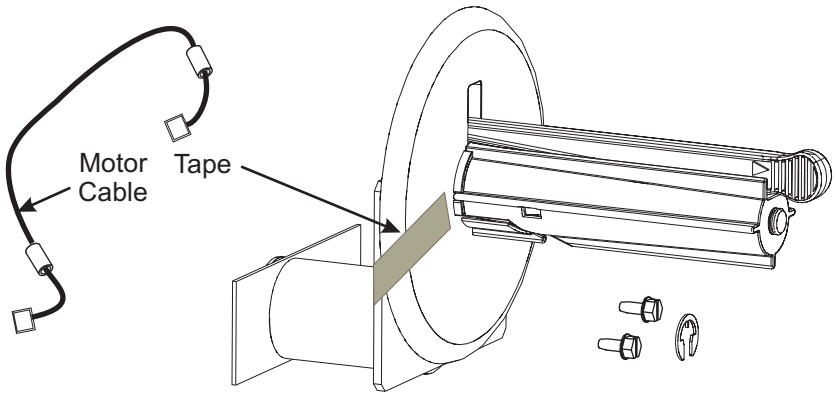


Figure 4-58. Contents of Liner Take-up Assembly Kit

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-49. Open the media door and remove the electronics cover by removing the two mounting screws.
3. Refer to Figure 4-59. Remove the spindle from the shaft of the liner rewind assembly.

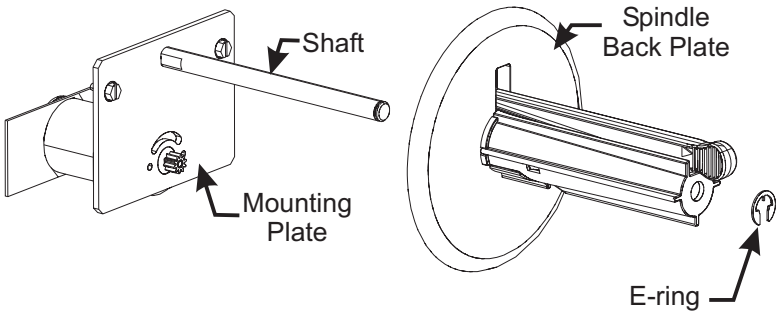


Figure 4-59. Liner Take-up Exploded View

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

4. Refer to Figure 4-60. Connect one end of the supplied cable assembly to P3 on the main logic board
5. Feed the other end of the cable assembly through the access hole in the base of the main frame.

6. Attach the other end of the liner take-up motor cable to the liner take-up motor assembly.

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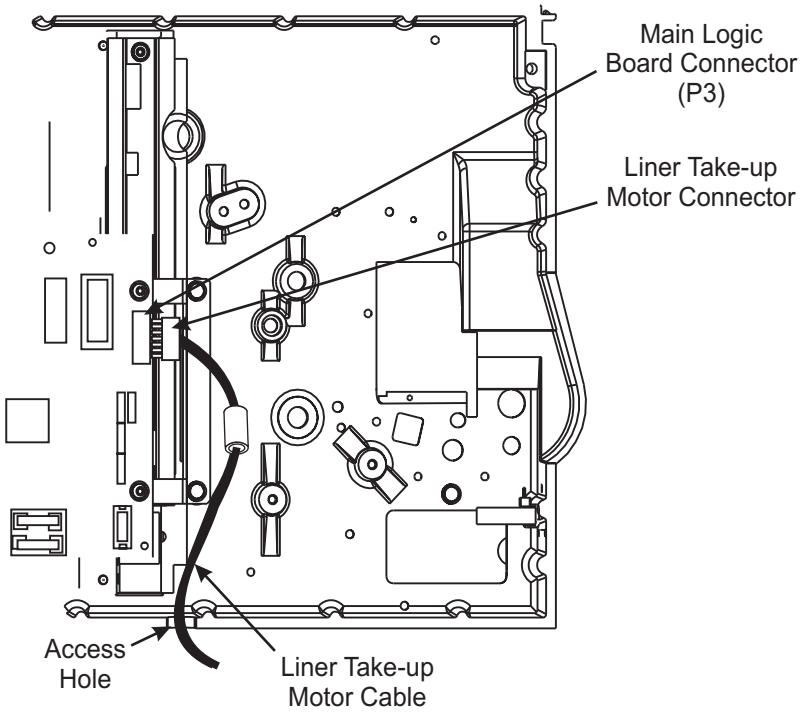

Figure 4-60. Liner Take-up Motor Harness Installation

7. Refer to Figure 4-61. Align the holes in the motor assembly mounting plate with the holes in the main frame. Secure the motor assembly with two screws.

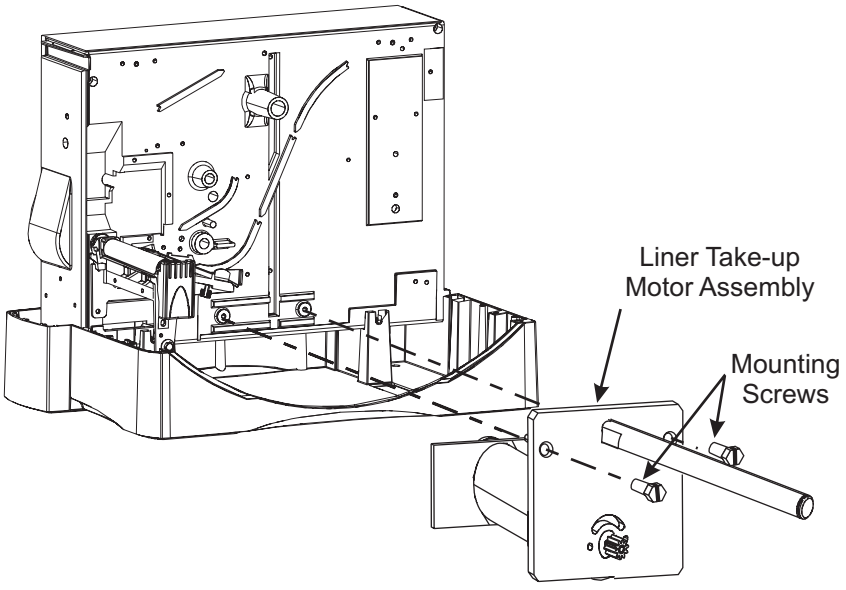

Figure 4-61. Liner Take-up Motor Assembly Installation

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

8. Refer to Figure 4-59. Slide the spindle on the shaft, and install the E-ring provided.
9. Reinstall the electronics cover.
10. Reinstall the AC power cord and apply power.
11. Turn the printer On (**I**).

For media loading, see value peel-off mode with liner take-up on page 2-10.

Installing the Value Peel Rewind Option

Note • The Firmware must be: version 39.11.0 or higher.

Caution • This installation must be performed by a qualified service technician.

To download the correct version of firmware go to: www.zebra.com/firmware and choose the Z4M/Z6M. Choose the correct version (*39.11.0 or higher)* from the firmware matrix and follow the directions.

Or call: USA: 1-847.913.2259
Europe: 44 (0) 1494 536644.

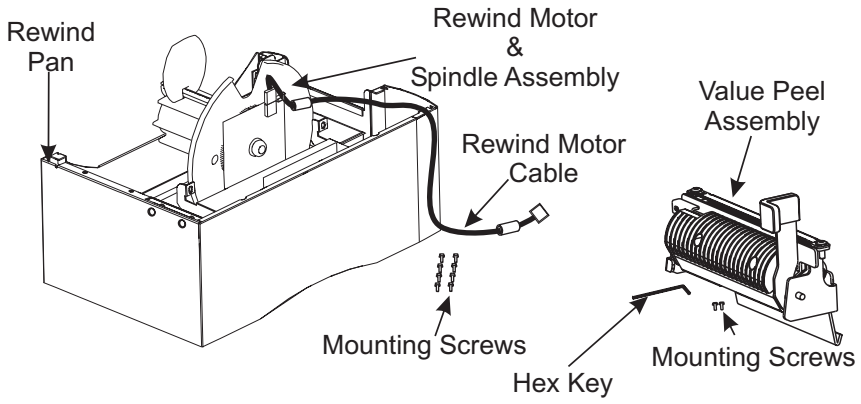

Figure 4-62. Value Peel Rewind Kit Contents

Remove Base

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Refer to Figure 4-49. Open the media door and remove the ribbon and media.
3. Remove and retain the two screws that secure the electronics cover to the printer. Remove the electronics cover.

4. Carefully remove the plastic latch cover from the platen housing latch.
5. Slide the front cover to the right, then lift to remove.
6. Reinstall the plastic latch cover.
7. Refer to Figure 4-63. Loosen, but do not remove, the three screws that attach the rear cover to the main frame and base.

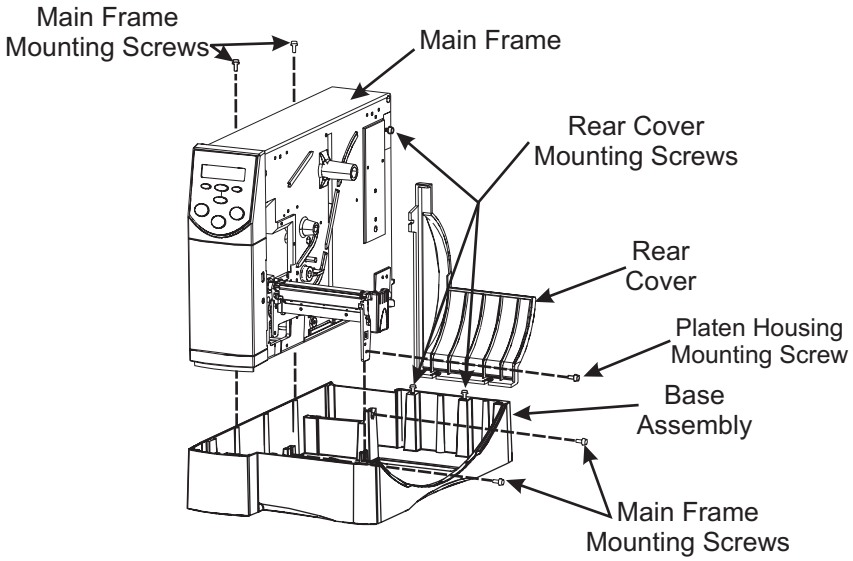

Figure 4-63. Base Removal

Note • Do not remove the screws attaching the platen housing to the main frame.

8. Remove the screw that attaches the platen housing to the base. If there is a plastic washer present, discard it.
9. Remove the four screws that attach the main frame to the base.
10. Lift the main frame off the base assembly.

Install Rewind Pan

Note • Alignment is very important. The platen housing leg must be inside the mounting tab of the rewind pan.

1. Refer to Figure 4-63. Place the main frame onto the rewind pan assembly. Ensure the rear ledge of the main frame rests completely on the rear support in the pan.

Note • The oversize mounting hole in the pan allows for adjustment of the front of the pan to align with the door.

2. Install, but do not tighten, the main frame mounting screws provided in the kit. After starting the screws, recheck the alignment from step 1. Tighten the two screws on the rear of the main frame.
3. Tighten the rest of the main frame mounting screws.

4. Reinstall the rear cover by sliding it under the screw loosened previously on the main frame. Leave the screw loose.
5. Using the two screws supplied in the kit, attach the rear cover to the rewind pan. Tighten the two screws and the one screw on the main frame.

Note • Make sure the two holes on rewind support bracket face up and are aligned with the mounting holes in the main frame.

6. Refer to Figure 4-64. Place the rewind motor and spindle assembly inside the rewind pan assembly.

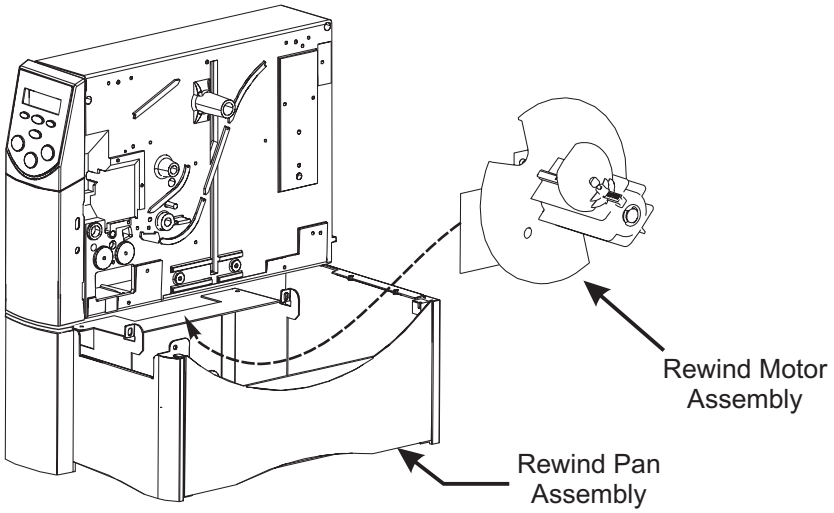

Figure 4-64. Rewind Motor Location

7. Feed the rewind motor cable up through the hole in the bottom of the main frame.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

8. Refer to Figure 4-65. Connect the rewind motor cable connector to the main logic board assembly connector P3.

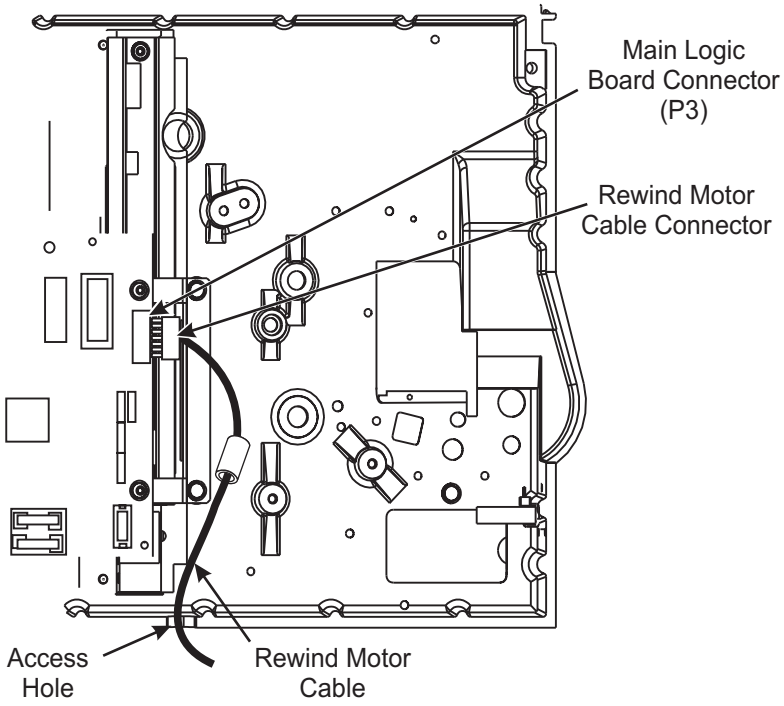

Figure 4-65. Main Logic Board Connector

9. Refer to Figure 4-66. Align one of the two access holes on the rewind back plate to one of the mounting holes on the rewind support.

Note • For ease of alignment do not tighten the first screw until the second screw is installed.

10. Mount the rewind motor and spindle assembly to the printer main frame using one of the two screws removed previously.

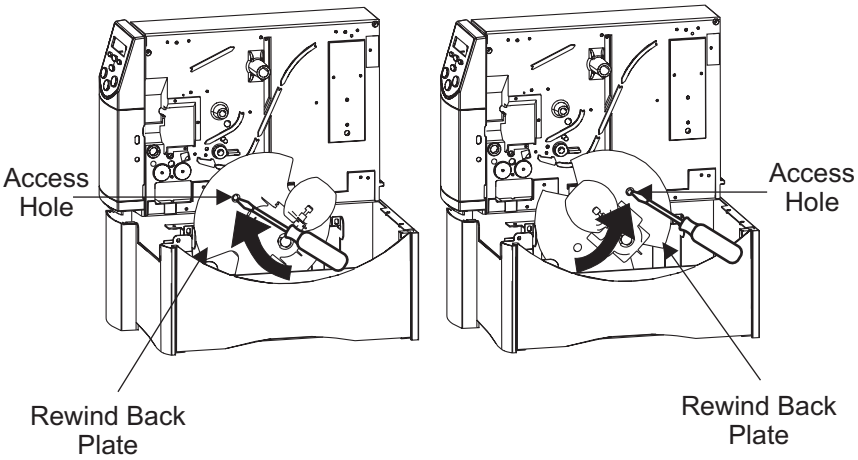

Figure 4-66. Rewind Motor Assembly Mounting

11. Align the other access hole of the rewind back plate to the other mounting hole on the rewind support. Install the mounting screw and tighten.

12. Tighten the screw previously installed

13. Install the electronics cover and secure with the two screws removed previously.

Installation of Value Peel Assembly

Note • If there is an existing value peel assembly, it must be removed. If a value peel assembly in not currently installed the tear bar must be removed.

1. To remove an existing tear bar, refer to Figure 4-67 remove the two mounting screws and remove the tear bar.

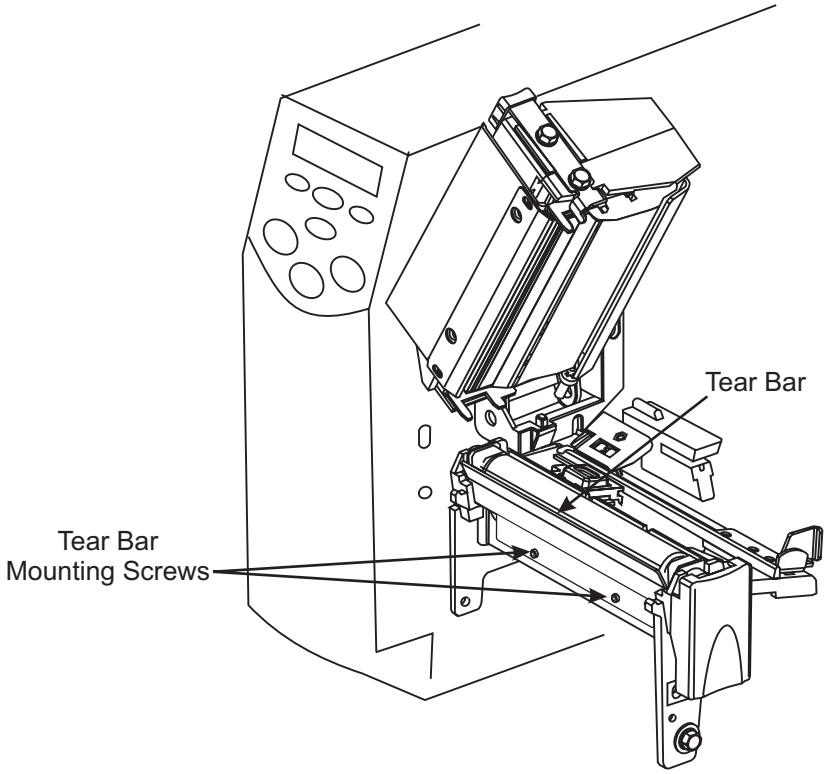

Figure 4-67. Tear Bar Removal

2. To remove an existing value peel assembly, refer to Figure 4-68.
3. Remove the two existing mounting screws and remove the value peel assembly.

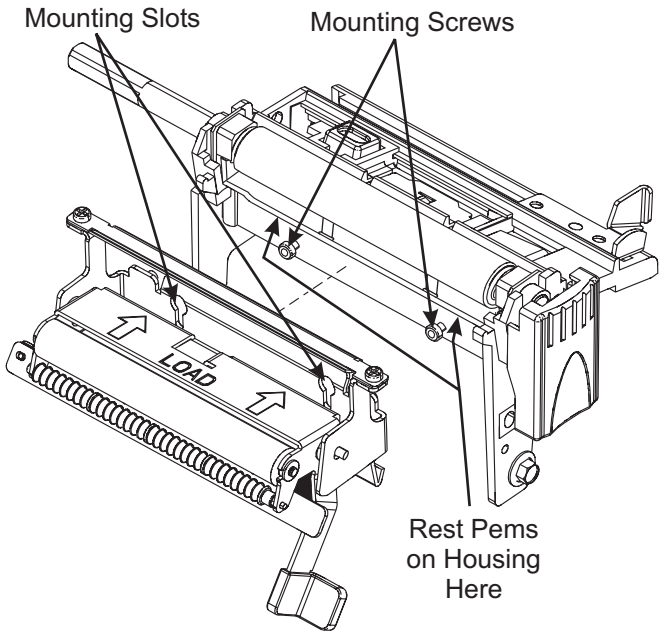

Figure 4-68. Value Peel Installation and Removal

4. Using the hex key supplied in the kit, install the two flanged mounting screws from the kit into the tear bar mounting screw holes. Tighten them to within 1/8 inch of the platen housing.
5. Refer to Figure 4-69. Take note of the pems and the mounting slots.

Value Peel Assembly

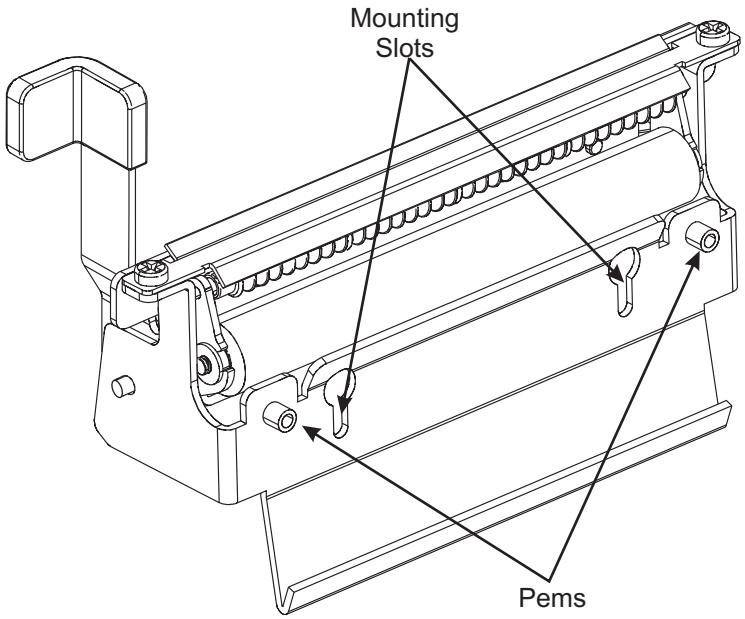

Figure 4-69. Rear of Value Peel Assembly

6. Refer to Figure 4-68. Install the value peel assembly with the pems to the rear and the opening in the mounting slot to the top. Insert the mounting slot opening over the two screws and lift up on the assembly. Now push the assembly back against the vertical surface of the platen assembly then down so that pems are resting on the horizontal surface of the platen housing.
7. Maintain a slight pressure downward on the value peel assembly to keep pems on the horizontal surface, and tighten the mounting screws.

Install Power Rewind/Peel Option

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

Caution • This installation must be performed by a qualified service technician.

Install the Rewind Pan/Rewind Motor and Spindle

1. Turn the printer Off (**O**) and disconnect the AC power.
2. Refer to Figure 4-49. Open the media door and remove the ribbon and media
3. Remove and retain the two screws that secure the electronics cover to the printer. Remove the electronics cover.
4. Carefully remove the plastic latch cover from the platen housing latch.
5. Slide the front cover to the right, then lift to remove.
6. Reinstall the plastic latch cover.
7. Refer to Figure 4-70. Loosen, but do not remove, the three screws that attach the rear cover to the main frame and base.

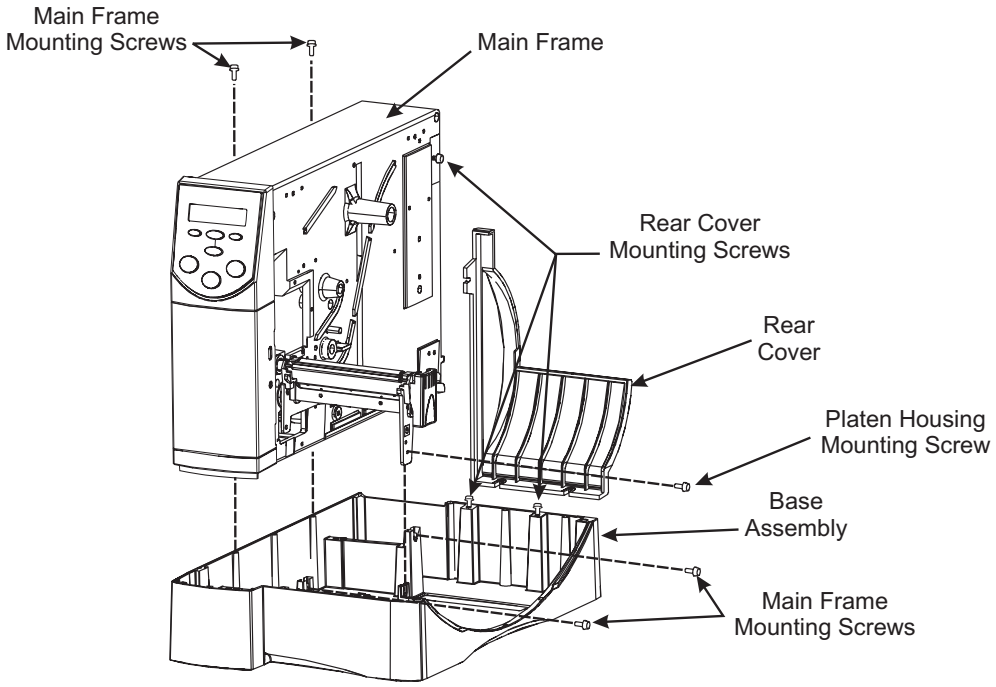

Figure 4-70. Pan Removal

Note • Do not remove the screws attaching the platen housing to the main frame.

8. Remove the screw that attaches the platen housing to the base. If there is a plastic washer present, discard it.
9. Remove the four screws that attach the main frame to the base.
10. Lift the main frame off the base assembly.

Installation of Rewind Pan

Note • Alignment is very important. The platen housing leg must be inside the mounting tab of the rewind pan.

1. Refer to Figure 4-71. Place the main frame onto the rewind pan assembly. Ensure the rear ledge of the main frame rests completely on the rear support in the pan.

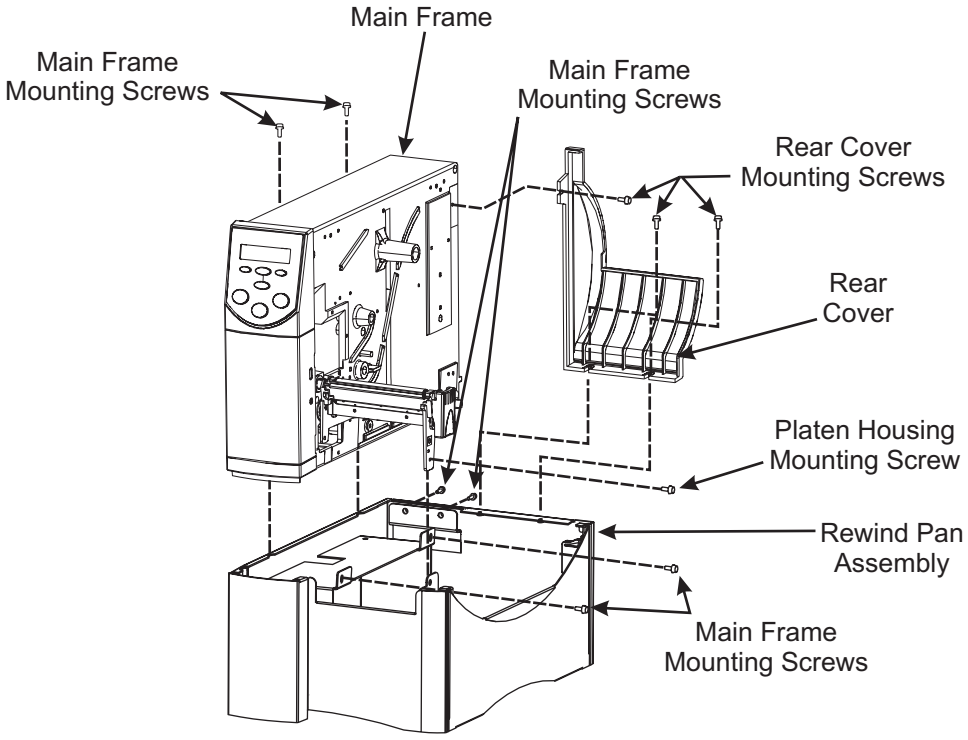

Figure 4-71. Rewind Pan Installation

Note • The oversize mounting hole in the pan allows for adjustment of the front of the pan to align with the door.

2. Install, but do not tighten, the main frame mounting screws provided in the kit. After starting the screws, recheck the alignment from step 1, tighten the two screws on the rear of the main frame.
3. Tighten the rest of the main frame mounting screws.
4. Reinstall the rear cover by sliding it under the screw loosened previously on the main frame. Leave the screw loose.
5. Using the two screws and washers supplied in the kit attach the rear cover to the rewind pan. Tighten the two screws and the one screw on the main frame.
6. Connect the rewind cable assembly to the connector on the rewind motor and spindle assembly.

Note • Make sure the two holes on rewind support bracket face up and are in-line with the printer main frame.

7. Refer to Figure 4-72. Place the rewind motor and spindle assembly inside the rewind pan assembly.

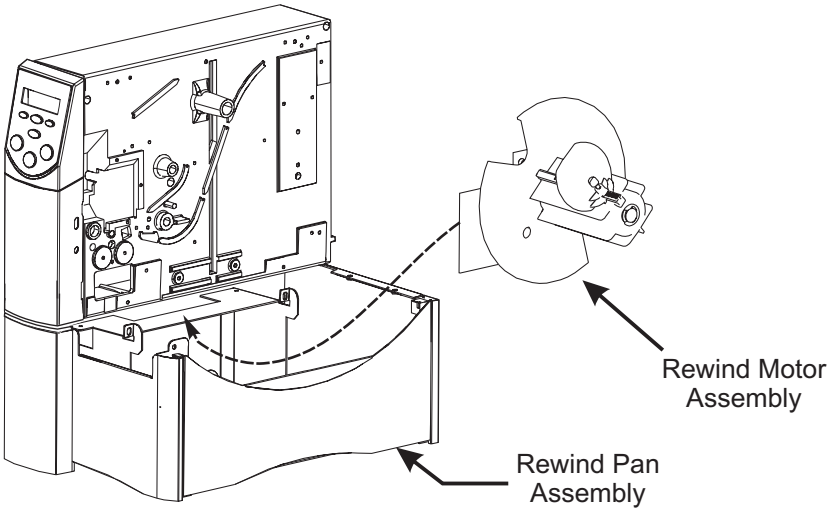

Figure 4-72. Rewind Motor Location

8. Feed the wire harness up through the hole in the bottom of the main frame.
9. Refer to Figure 4-73. Connect the rewind motor harness connector to the main logic board assembly connector P3.
10. Refer to Figure 4-74. Align one of the two access holes on the rewind back plate to one of the mounting holes on the rewind support plate. Mount the rewind motor and spindle assembly to the printer main frame using one of the two screws provided. Do not tighten the screw at this time.
11. Align the other access hole of the rewind back plate to the other mounting hole on the rewind support plate. Install the mounting screw and tighten.
12. Tighten the screw installed in step 10.

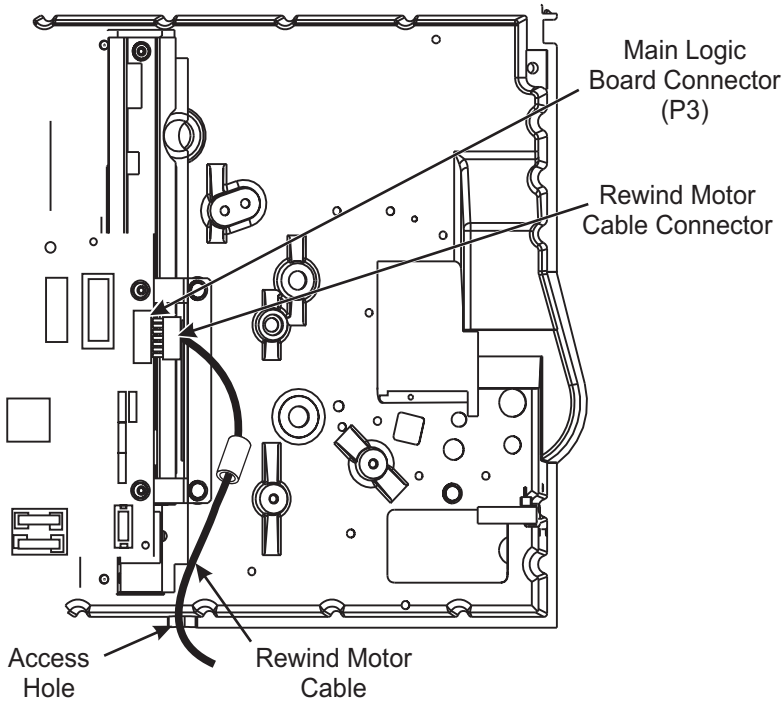

Figure 4-73. Main Logic Board Connector

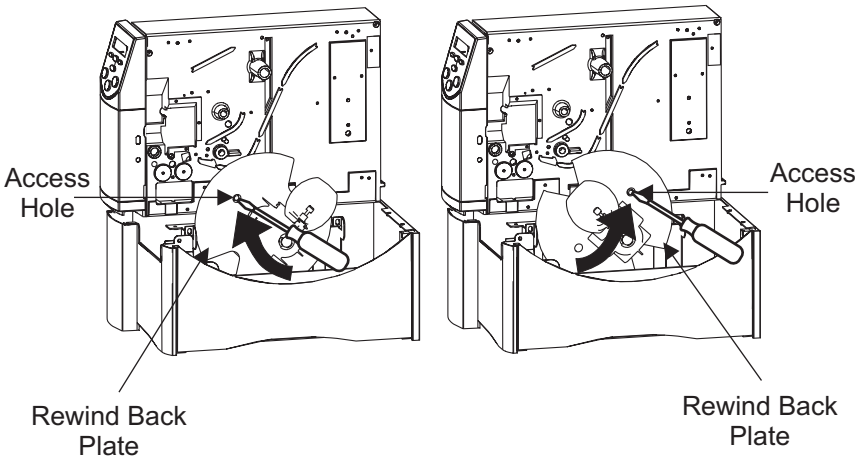

Figure 4-74. Rewind Motor Assembly Mounting

13. Replace the electronics side cover.

Install Peel Assembly

1. Refer to Figure 4-75. Hook the peel assembly hooks onto the hooks of the platen housing.

Note • Verify that the ribbon cable running between the inside mounting plate and the main frame is located above the inside mounting screw.

2. With the peel assembly in the “open” position, secure the inside mounting plate of the assembly to the platen housing using the mounting screw provided with the kit.
3. Secure the outside peel assembly mounting plate and the peel assembly grounding strap to the platen housing using the remaining mounting screw provided.

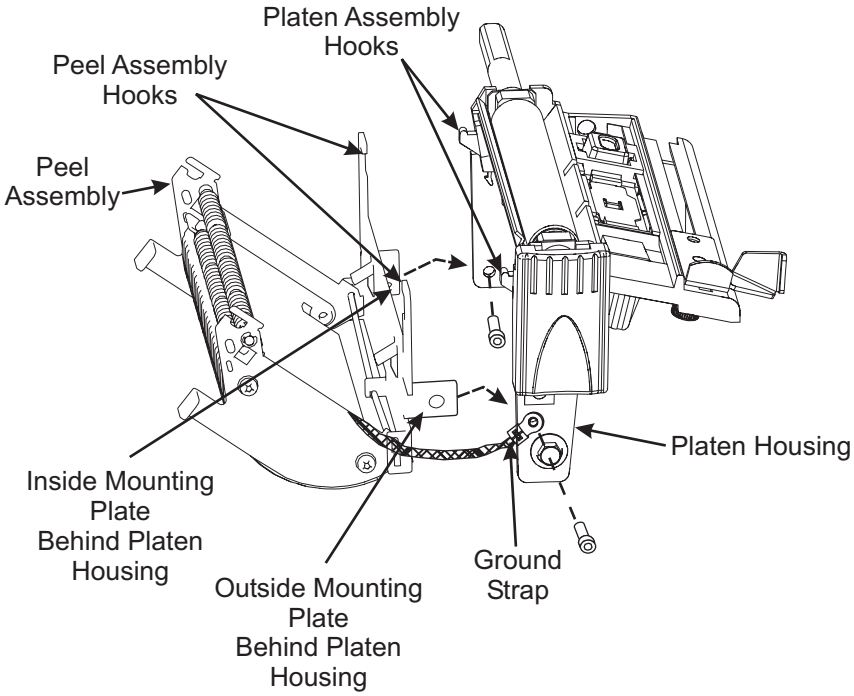

Figure 4-75. Installing Front Housing Assembly

Maintenance Kits

Rewind Motor and Spindle Assembly

Caution • This installation must be performed by a qualified service technician.

KIT NUMBER	Printer
77498M	*Z*4M with Power Peel/Rewind
77898M	*Z*6M with Power Peel/Rewind
78007M	*Z*4M with Value Peel/Rewind
78007-6M	*Z*6M with Value Peel/Rewind

Note • For 78007M and 78007-6M, the firmware must be version 39.11.0 or higher.

To download the correct version of firmware go to: www.zebra.com/firmware and choose the Z4M/Z6M. Choose the correct version from the firmware matrix and follow the directions.

Or call: USA: 1-847.913.2259
Europe: 44 (0) 1494 536644.

Remove Rewind Motor and Spindle Assembly Removal

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove the ribbon and media.
3. Open the rewind pan door and remove any labels/liner from the rewind spindle.
4. Refer to Figure 4-49. Remove the electronics cover.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

5. Refer to Figure 4-76. From the electronics side, remove the rewind motor connector (P3) on the main logic board.

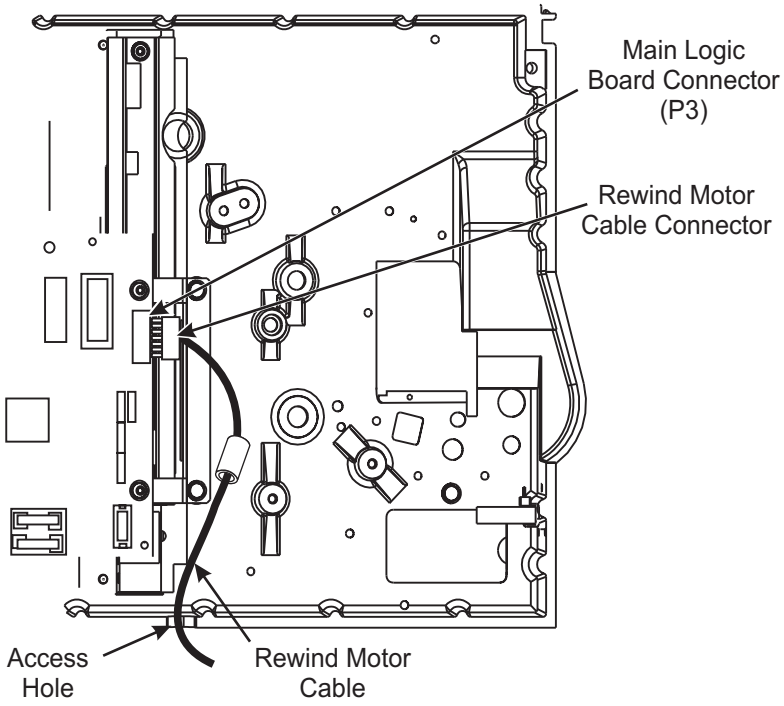

Figure 4-76. Main Logic Board Connection

6. Refer to Figure 4-77. Rotate the spindle until one of the two access holes on the rewind back plate align with one of the mounting screws on the rewind support. Remove the screw.
7. Align the other access hole of the rewind back plate to the other mounting screw and remove the screw.

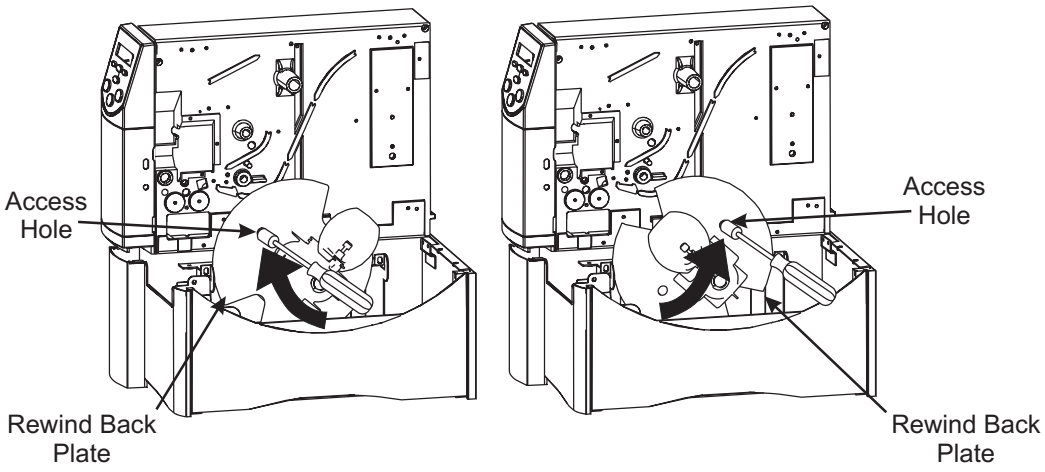

Figure 4-77. Motor and Spindle Removal and Installation

8. Remove the rewind motor and spindle assembly from the printer. Carefully guide the rewind motor cable through the hole in the main frame.

9. Refer to Figure 4-78. Cut the cable tie securing the media rewind cable to the PCB assembly.

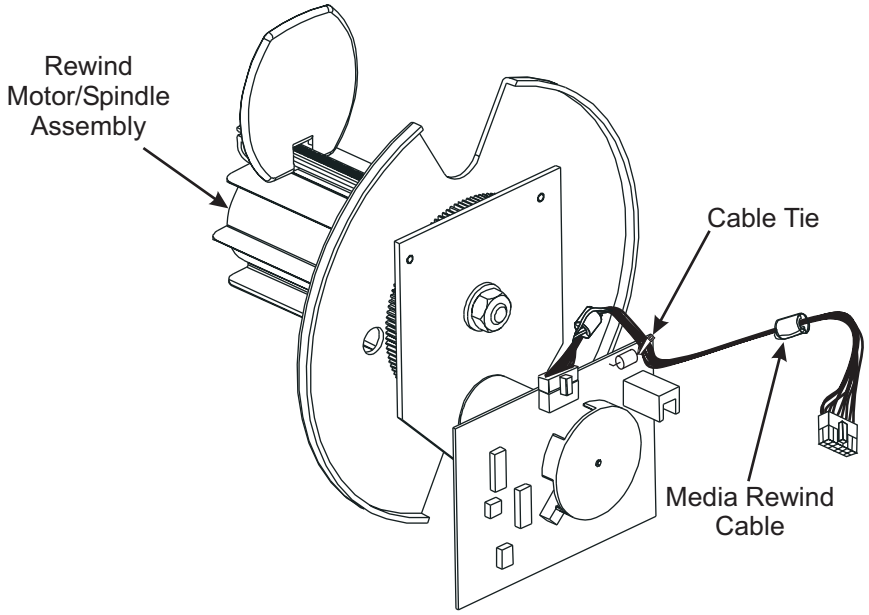

Figure 4-78. Cable Location

10. Disconnect the media rewind cable from the connector on the PCB.

Rewind Motor and Spindle Installation

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

1. Connect the media rewind cable to the PCB motor assembly.
2. Cable tie the media rewind cable to the outside leg of diode D1 on the PCB motor assembly as shown in Figure 4-78.
3. Carefully guide the media rewind cable through the access hole in the bottom of the main frame while sliding the rewind motor and spindle assembly into the rewind pan.
4. Refer to Figure 4-77. Align one of the two access holes on the rewind back plate to one of the mounting holes on the rewind support.

Note • For ease of alignment do not tighten the first screw until the second screw is installed.

5. Mount the rewind motor and spindle assembly to the printer main frame using one of the two screws removed previously.
6. Align the other access hole of the rewind back plate to the other mounting hole on the rewind support. Install the mounting screw and tighten.
7. Tighten the screw previously installed.
8. Reinstall the electronics cover.

9. Reinstall the media and ribbon. Close the media door.
10. Reconnect the AC power cord and restore power.
11. Turn the printer On (**I**). Place the printer into the rewind or peel mode (see the User Guide for proper set-up and media loading instruction).

Rewind PCB Motor Assembly

Caution • This installation must be performed by a qualified service technician.

KIT NUMBER	Printer
77740M	*Z*4M with Power Peel/Rewind
78010M	*Z*4M with Value Peel/Rewind
78011M	*Z*6M with Value Peel/Rewind

Note • For 78010M and 78011M, the firmware must be version 39.11.0 or higher.

To download the correct version of firmware go to: www.zebra.com/firmware and choose the Z4M/Z6M. Choose the correct version (*39.11.0 or higher)* from the firmware matrix and follow the directions.

Or call: USA: 1-847.913.2259
Europe: 44 (0) 1494 536644.

Remove Rewind PCB Motor Assembly

1. Turn the printer Off (**O**) and disconnect the AC power cord.
2. Open the media door and remove media and ribbon from the printer.
3. Open the rewind pan door and remove any labels/liner from the rewind spindle.
4. Refer to Figure 4-49. Remove the electronics cover.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

5. Refer to Figure 4-79. Disconnect the media rewind cable connector from P3 on the main logic board.

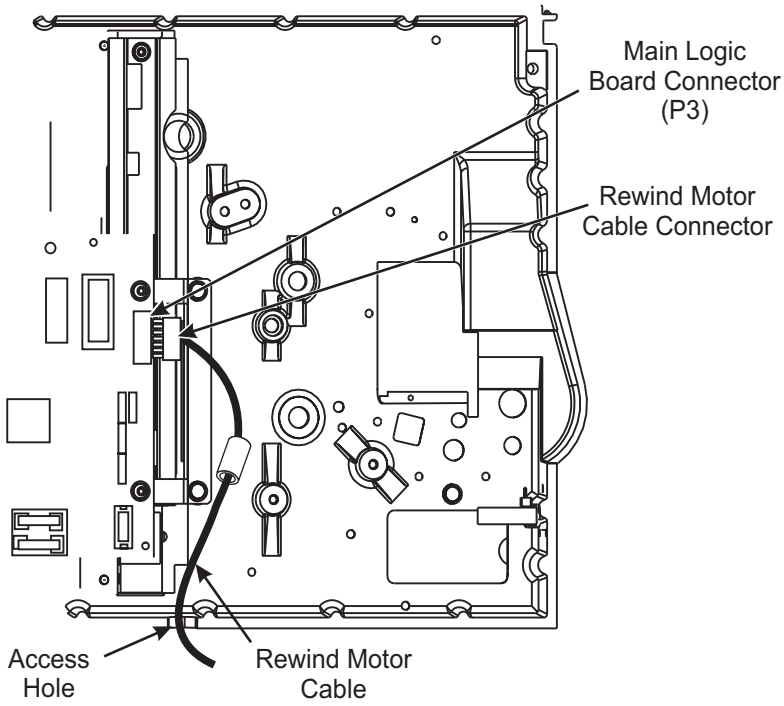

Figure 4-79. Rewind Motor Cable Location

6. Refer to Figure 4-80. Rotate the spindle until one of the two access holes on the rewind back plate align with one of the mounting screws on the rewind support. Remove the screw.
7. Align the other access hole of the rewind back plate to the other mounting screw and remove the screw.

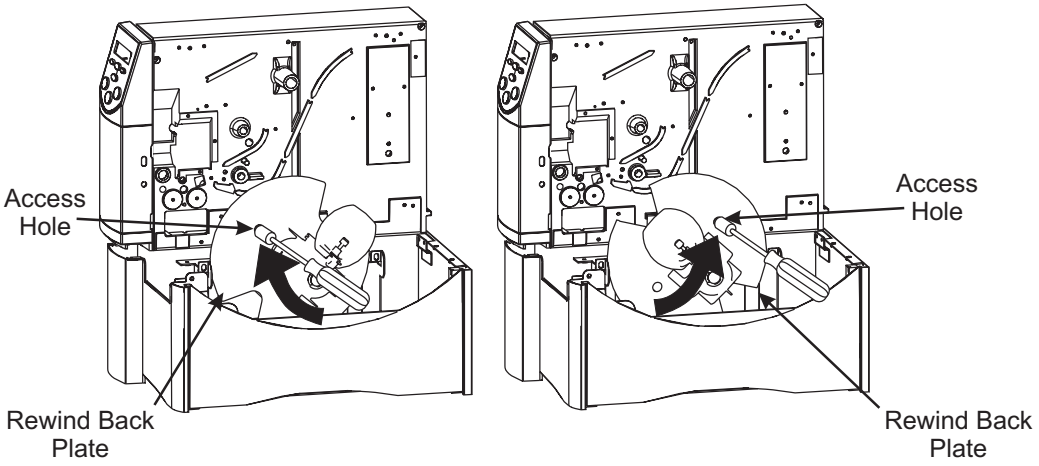

Figure 4-80. Motor & Spindle Removal and Installation

8. Carefully slide the rewind motor and spindle assembly out of the rewind pan while guiding the media rewind cable through the hole in the bottom of the main frame.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

9. Refer to Figure 4-81. Using a standard screwdriver, remove the E-ring from the rewind shaft.

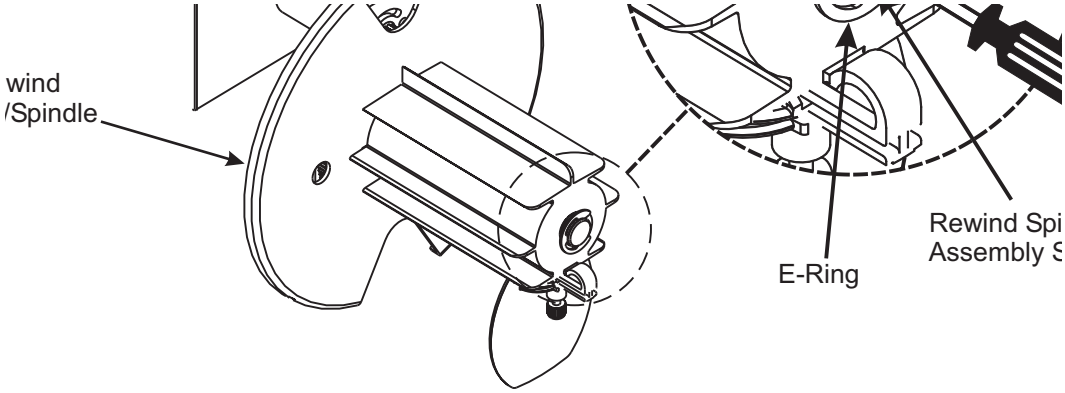

Figure 4-81. E-Ring Removal and Installation

10. Remove the flat washers and wave washer from the shaft.
11. Remove the rewind spindle from the rewind shaft.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

12. Refer to Figure 4-82. Remove and retain the two mounting screws that secure the rewind PCB assembly to the rewind support.

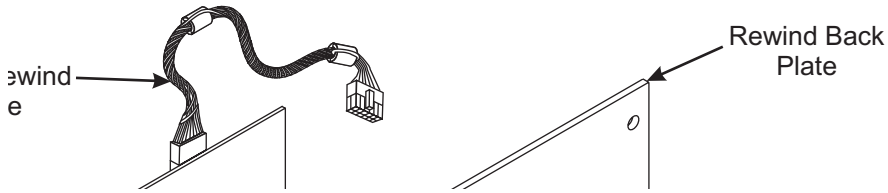

Figure 4-82. PC Board Assembly Removal and Installation

13. Cut the cable tie securing the media rewind cable to the PCB assembly.
14. Disconnect the media rewind cable from the connector on the PCB.

Install PCB Motor Assembly

1. Refer to Figure 4-83. Orient the new PCB motor assembly with the connector facing up. Using the two mounting screws previously removed, mount the PCB motor assembly to the rewind support.
2. Connect the media rewind cable to the PCB motor assembly.
3. Cable tie the media rewind cable to the outside leg of diode D1 on the PCB motor assembly as shown in Figure 4-83.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

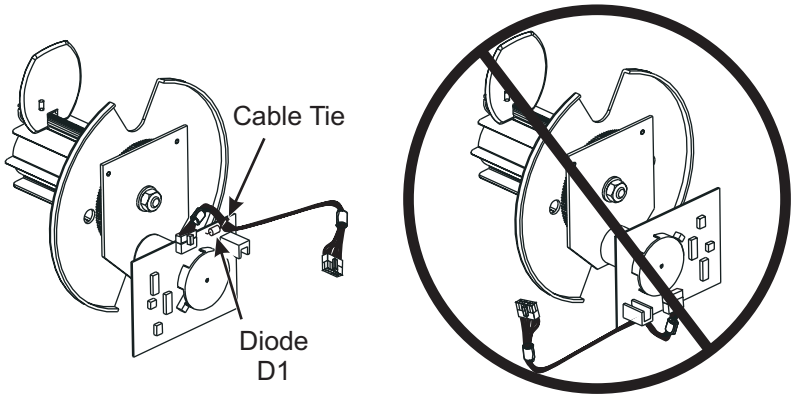

Figure 4-83. PCB Motor Assembly Orientation

4. Refer to Figure 4-81. Reinstall the rewind spindle using the E-ring previously removed.
5. Carefully guide the media rewind cable through the access hole in the bottom of the main frame while sliding the rewind motor and spindle assembly into the rewind pan.
6. Refer to Figure 4-80. Align one of the two access holes on the rewind back plate to one of the mounting holes on the rewind support.

Note • For ease of alignment do not tighten the first screw until the second screw is installed.

7. Mount the rewind motor and spindle assembly to the printer main frame using one of the two screws removed previously.
8. Align the other access hole of the rewind back plate to the other mounting hole on the rewind support. Install the mounting screw and tighten.
9. Tighten the screw previously installed.
10. Refer to Figure 4-79. Reconnect the media rewind cable connector to P3 on the main logic board assembly.
11. Replace the electronics cover and reinstall media and ribbon. Close the media door and reconnect the power cord.
12. Turn the printer On (**I**). Place the printer into the power rewind or power peel mode (see User Guide for proper set-up and media loading instructions).

Pinch Roller Kit Installation

1. Lower pinch roller holder assembly to open position.

Caution • Wear protective eyewear when removing E-rings, C-clips, snap rings, and springs. These are under tension and could fly off while removing.

Note • If the E-rings are not accessible, you can remove the value peel assembly. To do so, loosen the two screws mounting the value peel assembly and remove it from the printer.

2. Refer to Figure 4-84. Remove the two E-rings using a small flat blade screwdriver. Remove the bearings and roller.

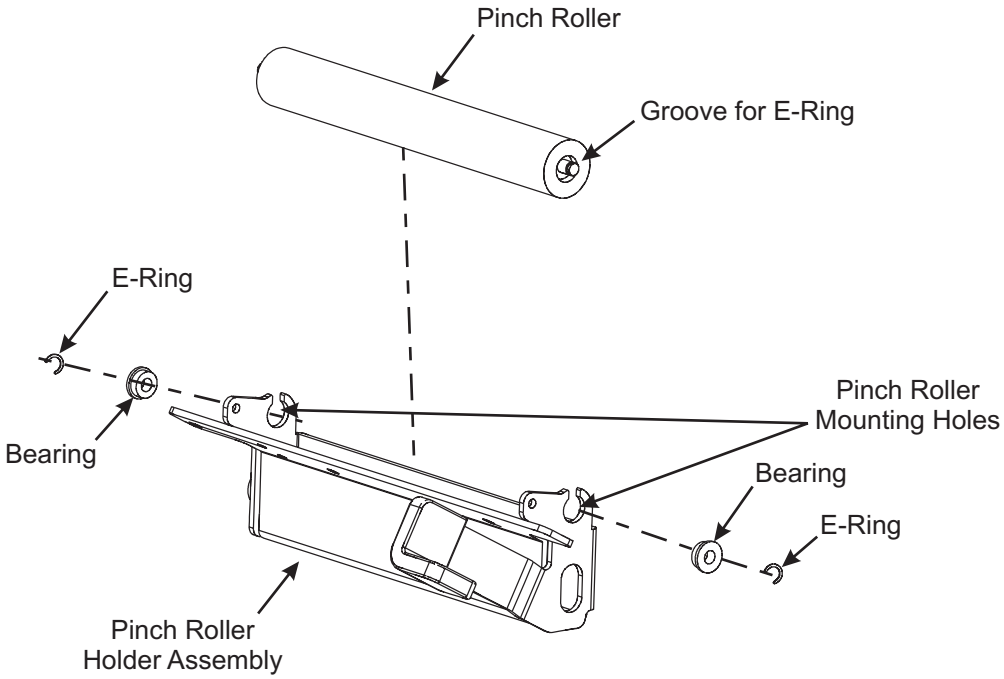

Figure 4-84. Removing and Installing E-Rings and Bearings

3. Set the new pinch roller in the mounting holes in the pinch roller holder assembly.
4. Orient the bearing as shown and push the two new bearings on the shaft of the pinch roller. Small side of bearing goes toward rollers.
5. Carefully install two new E-ring retainers in grooves in roller shaft **(**two extra E-rings are supplied).
6. If you had to remove the value peel assembly, refer to steps 8 – 11 of the See “Install Value Peel Option” on page 61., and reinstall the assembly.

Section 5
Maintenance and Assembly Drawings

General Information

Use the mechanical assembly drawings when troubleshooting or replacing components and use the associated parts list when ordering replacement parts. Item parts that do not have associated part numbers are not available and need to be ordered using the next highest assembly number.

Caution • Observe proper electrostatic safety precautions when handling any static-sensitive components such as circuit boards and printheads.

Table 5-1. Main Printer Assemblies

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77695M	Electronics Cover	1
2	77667M	Front Panel Assembly Maintenance Kit	1
3	77302M	Static Brush Assembly Kit (*Z*4M) (See Figure 5-7)	1
3	77302-6M	Kit, Maintenance Static Brush (*Z*6M) (See Figure 5-7)	1
4	77629	Cover, Rear (*Z*4M)	1
4	77704	Cover, Rear (*Z*6M)	1
5	77100M	Kit, Maintenance Ribbon Take-Up (*Z*4M)	1
5	77117M	Kit, Maintenance Ribbon Take-Up (*Z*6M)	1
6	77380M	Kit, Maintenance Hanger (*Z*4M)	1
6	77381M	Kit, Maintenance Hanger (*Z*6M)	1
7	77085M	Assembly, Ribbon Supply Maintenance Kit (*Z*4M)	1
7	77082M	Assembly, Ribbon Supply Maintenance Kit (*Z*6M)	1
8	77238M	Kit, Maintenance Dancer (See Figure 5-8) (*Z*4M)	1
8	77331	Kit, Maintenance Dancer (See Figure 5-8) (*Z*6M)	1
9	77171M	Kit, Maintenance Printhead Mechanism w/ Printhead (203 dpi) (*Z*4M) (See Figure 5-6.)	1
10	77752M	Kit, Maintenance Optical Media Sensor (Transmissive)	1
11	77765M	Kit, Maintenance Ribbon/Head Open Sensor	1
12	77034M	Kit, Maintenance Media Door (*Z*4M)	1
12	77035M	Kit, Maintenance Media Door (*Z*6M)	1
13	77023M	Kit, Maintenance Shaft Platen (*Z*4M) (See Figure 5-4)	1
13	77022M	Kit, Maintenance Shaft Platen (*Z*6M) (See Figure 5-4)	1
14	77049-104	Plate, Ribbon Stripe (*Z*4M)	1
14	77049-168	Plate, Ribbon Stripe (*Z*6M)	1
15	44014	Rubber Bumper	4
16	N/A	Base	1
17	N/A	Mainframe	1
18	77665	Cover, Front (*Z*4M)	1
18	77702	Cover, Front (*Z*6M)	1
N/S	77112M	Print Mechanism Latch Kit (See Figure 5-10 for Assembly breakdown)	1
N/S	77971	Cutter Kit Option (*Z*4M) (See Figure 5-12)	1
N/S	77972	Cutter Kit Option (*Z*6M) (See Figure 5-12)	1
N/S	77817	Flash Memory Kit Option (1 Mb) (See Figure 5-17)	1
N/S	77818	Flash Memory Kit Option (2 Mb) (See Figure 5-17)	1
N/S	77819	Memory Card (PCMCIA) Interface Option (See Figure 5-2)	1
N/S	77800M	Z Series Hardware Kit (Not Illustrated)	1

N/S: Not Shown
N/A: Not Available Separately

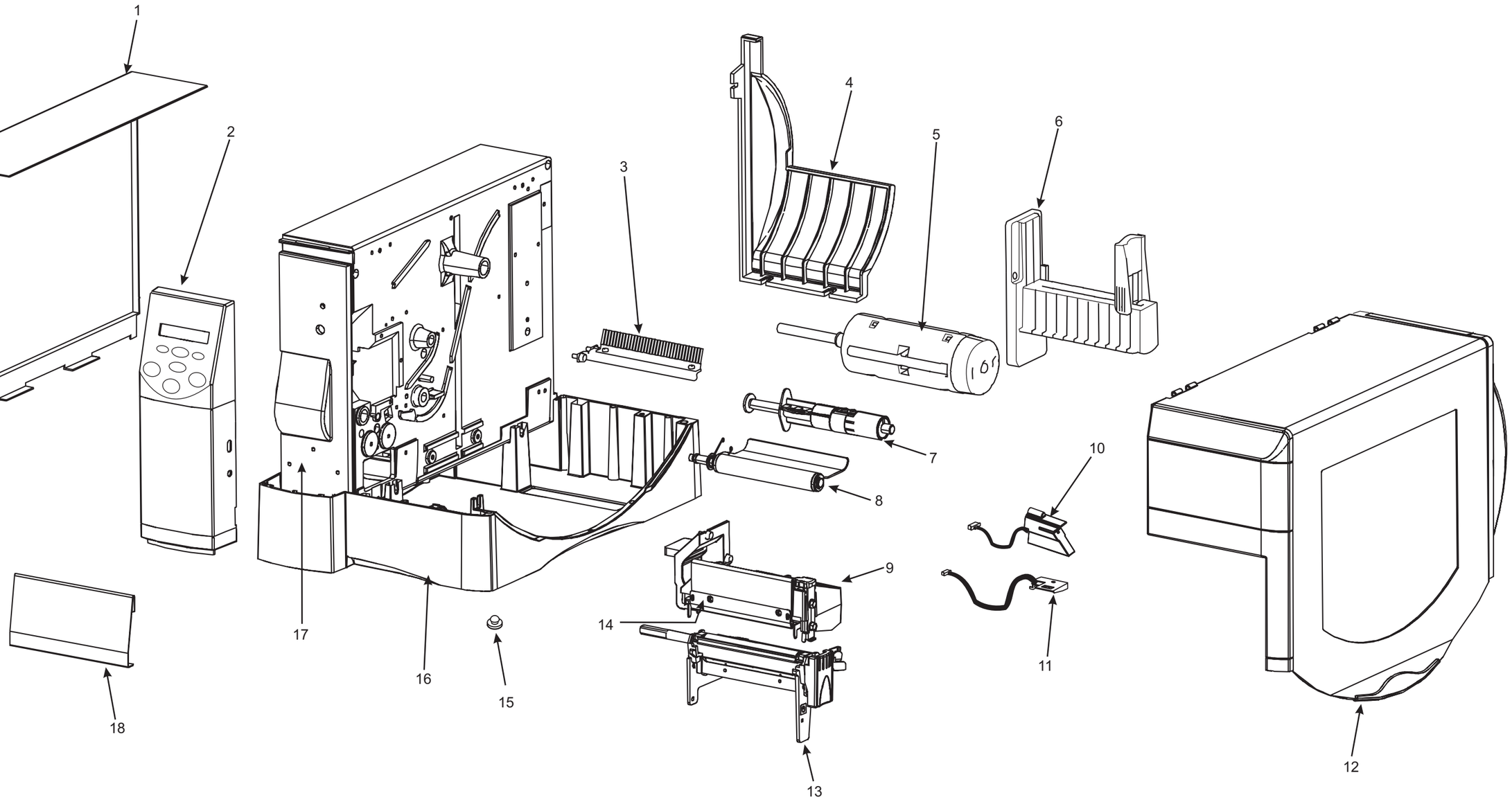

Figure 5-1. Main Printer Assemblies

Table 5-2. Electronics Maintenance Kits

Item	Part Number	Description	Quantity
1	77186	Plate, Back Cover, w/PCMCIA Port	1
1	77185	Plate, Back Cover, w/o PCMCIA Port	1
2	77237	Screw, M4 X 10	8
3	77715M	Power Supply Board Maintenance Kit	1
4	77550	Insulator, Pad	1
5	77282	Pad, Clamp	1
6	77571	Insulator, Electric Barrier	1
7	77016	Clamp, Heatsink Power Supply	1
8	49185	Screw, M3 X 14	3
9	**N/A	Screw, M4 x 16	3
10	77187	Bracket, CPU Support	1
11	Q06020	Tie Wrap	2
12	77904M	Main Logic Board Maintenance Kit	1
13	07696	Screw, 4-40, Pan Head	2
14	01153	Washer, Flat	4
15	22416	Standoff	2
16	07808	Clamp, Cable Flat	6
17	**N/A	Screw, Hex M4 x 0.7 x 8	1
18	77819	Memory Card (PCMCIA) Interface Option Kit	1
19	**N/A	Washer, Insulated	3
20	**N/A	Standoff	1
21	**N/A	Memory Card (PCMCIA) Interface	1
22	**N/A	Plate, Stud	1
23	**N/A	Fastener, Push-In	1
24	77520	Connector, Elastomeric for PCMCIA Interface	1
25	77315	Nut, Thumb for PCMCIA Interface	3
*N/S	77600	Cable, PSU-MLB	1

***N/S: Not Shown**
****N/A: Not Available Separately**

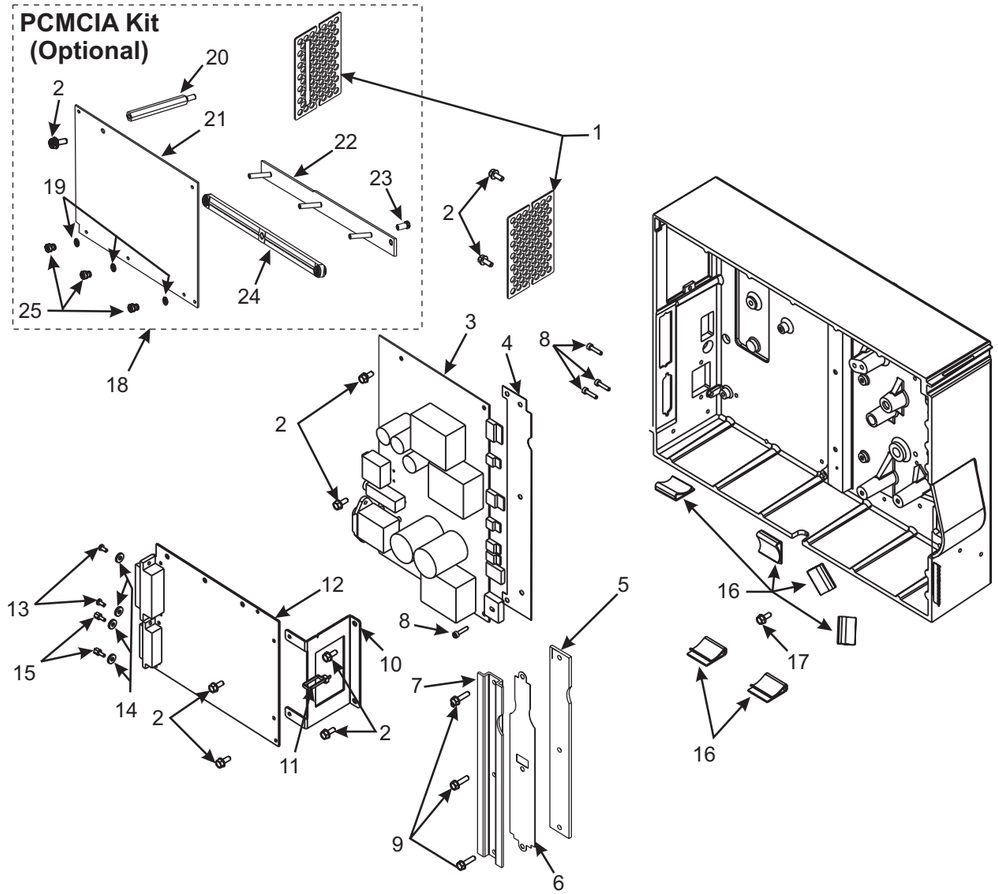

Figure 5-2. Electronics Maintenance Kits

Table 5-3. (Reflective) Media Sensor Assembly Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
REF	77807M	Kit, Maintenance Media Sensor Assembly (Reflective)	1
1	N/A	. Media Sensor Assembly	1
2	Q06020	. Tie Wrap	3
N/A: Not Available Separately			

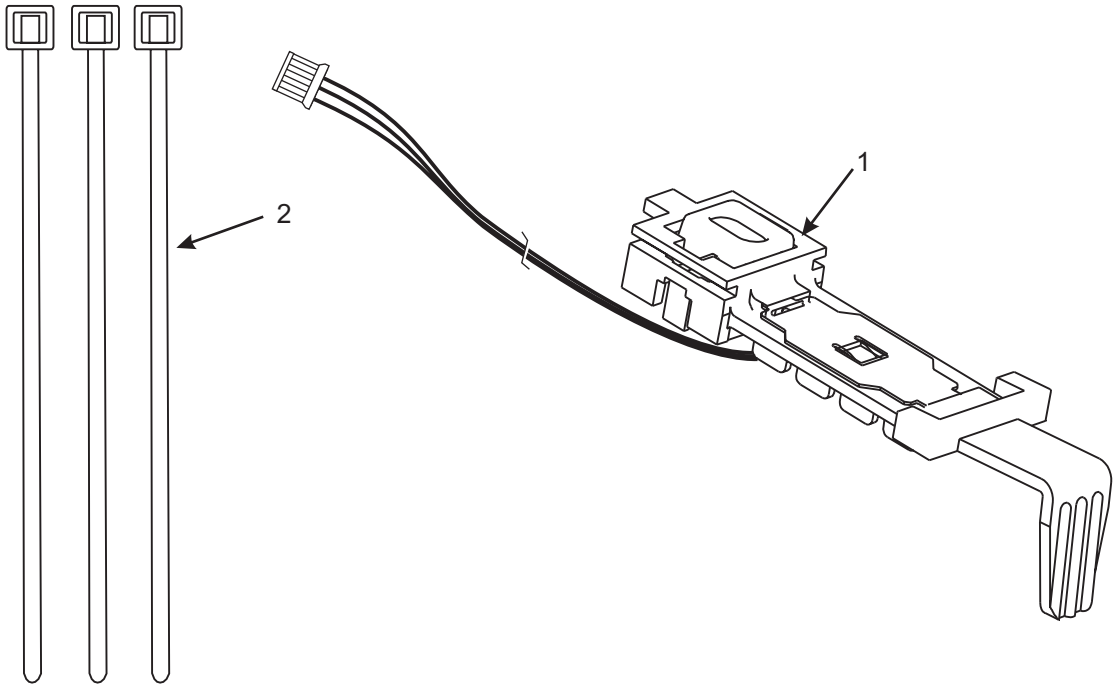

Figure 5-3. (Reflective) Media Sensor Assembly Maintenance Kit

Table 5-4. Platen Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	†HW44216	Screw, M4.2 x 1.41	1
2	77752M	Kit, Maintenance Optical (Transmissive) Media Sensor	1
3	77935M	Kit, Maintenance Media Edge Guide	1
4	†HW46128	Washer, Nylon	1
5	77807M	Kit, Assembly (Reflective) Media Sensor (See Figure 5-3.)	1
6	77023M	Kit, Maintenance Platen Roller Shaft (*Z*4M) (See Figure 5-5.)	1
6	77022M	Kit, Maintenance Platen Roller Shaft (*Z*6M) (See Figure 5-5.)	1
7	77765M	Kit, Maintenance Ribbon/Head Open Sensor	1
8	77078	Washer, Flat, 0.500 x 0.191 x 0.090	2
9	*HW77237	Screw, M4 x 0.7 x 10	3
10	77625M	Peel Tear Bar (*Z*4M)	1
10	77799M	Peal Tear Bar (*Z*6M)	1
11	77231	Screw, M3 x 8 mm	2
12	N/A	Washer, Nylon 0.2 x 0.625 x 0.020	1
13	†HW30208	Washer, Flat .500 x .191 x .030	1
14	N/A	Screw, M4 x 0.7 x 12 mm Hex Head	1
14	*HW77237	Screw, M4 x 0.7 x 10 mm Thread	1
15	77112M	Kit, Maintenance Latch (See Figure 5-10.)	1
N/A: Not Available Separately			

*Minimum Quantity of 5
†Minimum Quantity of 25

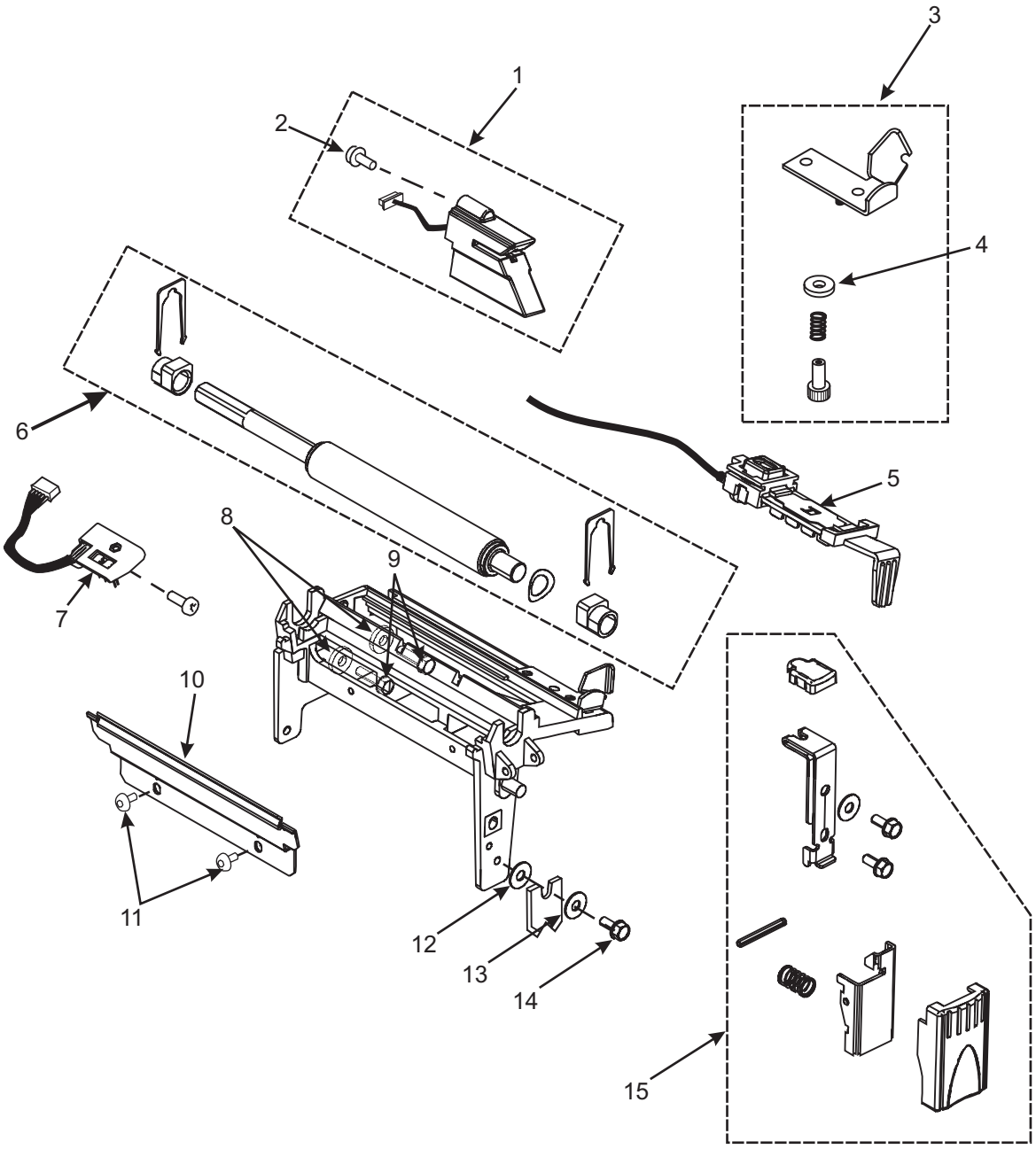

Figure 5-4. Platen Assembly

Table 5-5. Platen Roller Shaft Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
REF	77023M	Kit, Maintenance Platen Roller, *Z*4M	1
REF	77022M	Kit, Maintenance Platen Roller, *Z*6M	1
1	N/A	…Roller, Platen Shaft	1
2	N/A	…Bearing, Platen	1
3	N/A	…Spring, Clip	2
4	N/A	…Washer, Spring	1
N/A: Not Available Separately			

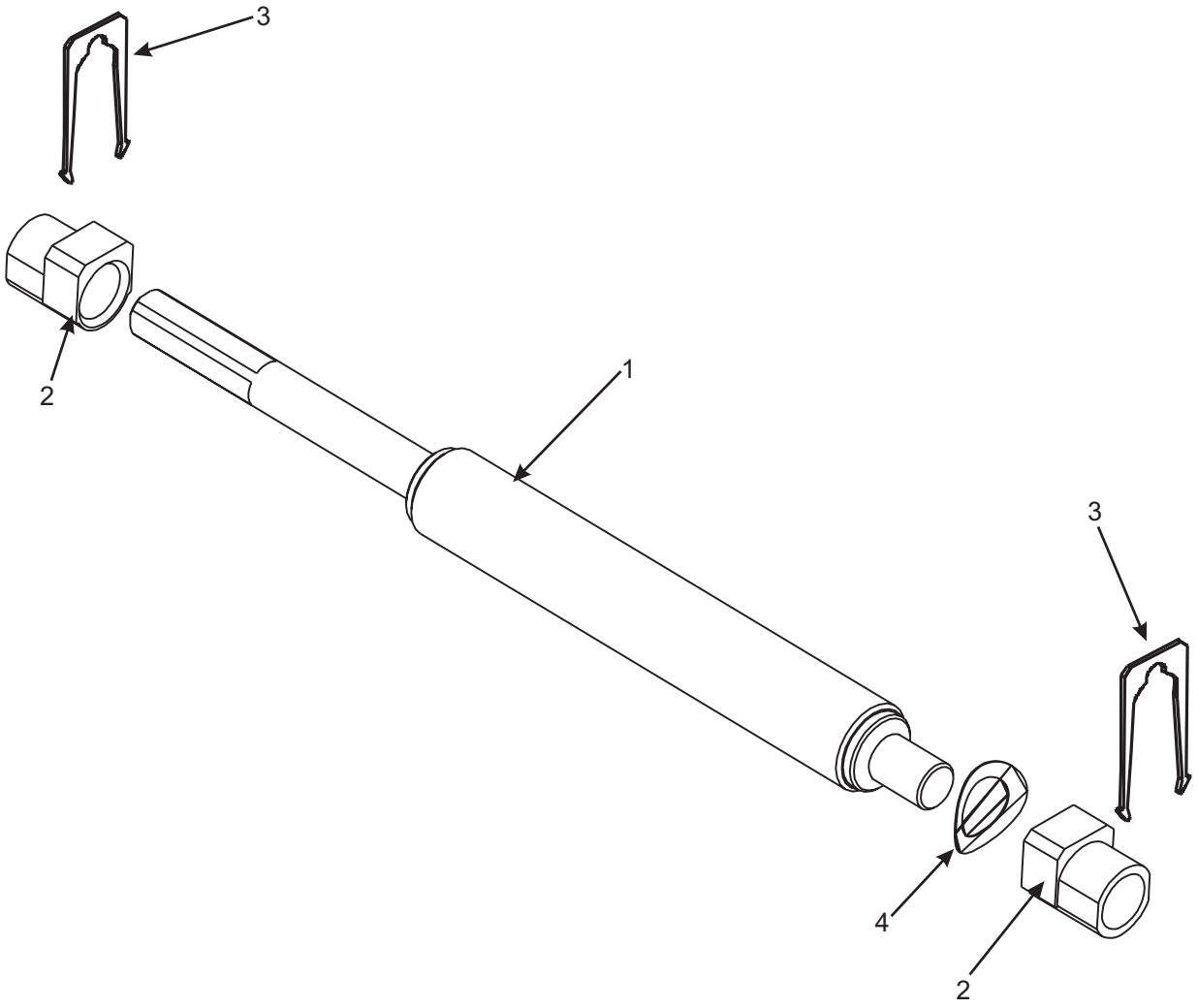

Figure 5-5. Platen Roller Shaft Maintenance Kit

Table 5-6. Printhead Housing Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77171M	Kit, Maintenance Printhead Housing (203 dpi printhead) *Z*4M	1
2	77804M	Kit, Maintenance Cable Printhead 4 inch	1
2	77831M	Kit, Maintenance Cable Printhead 6 inch	1
3	77500M	Kit, Maintenance Printhead 300 dpi (*Z*4M)	1
3	77000M	Kit, Maintenance Printhead 203 dpi (*Z*4M)	1
3	77001M	Kit, Maintenance Printhead 203 dpi (*Z*6M)	1
3	77501M	Kit, Maintenance Printhead 300 dpi (*Z*6M)	1
4	*HW77047	. Screw, Printhead Mounting	1
N/S	77802M	Kit, Maintenance Printhead Hardware 4 inch	1
N/S	N/A	. Cable, Braid 4 inch	1
N/S	N/A	. Spring, Compression 0.21 x .030 x 1.5	1
N/S	77049-104	. Plate, Ribbon Strip (*Z*4M)	1
N/S	77049-168	. Plate, Ribbon Strip (*Z*6M)	1

N/S: Not Shown
N/A: Not Available Separately

*Minimum Quantity of 5

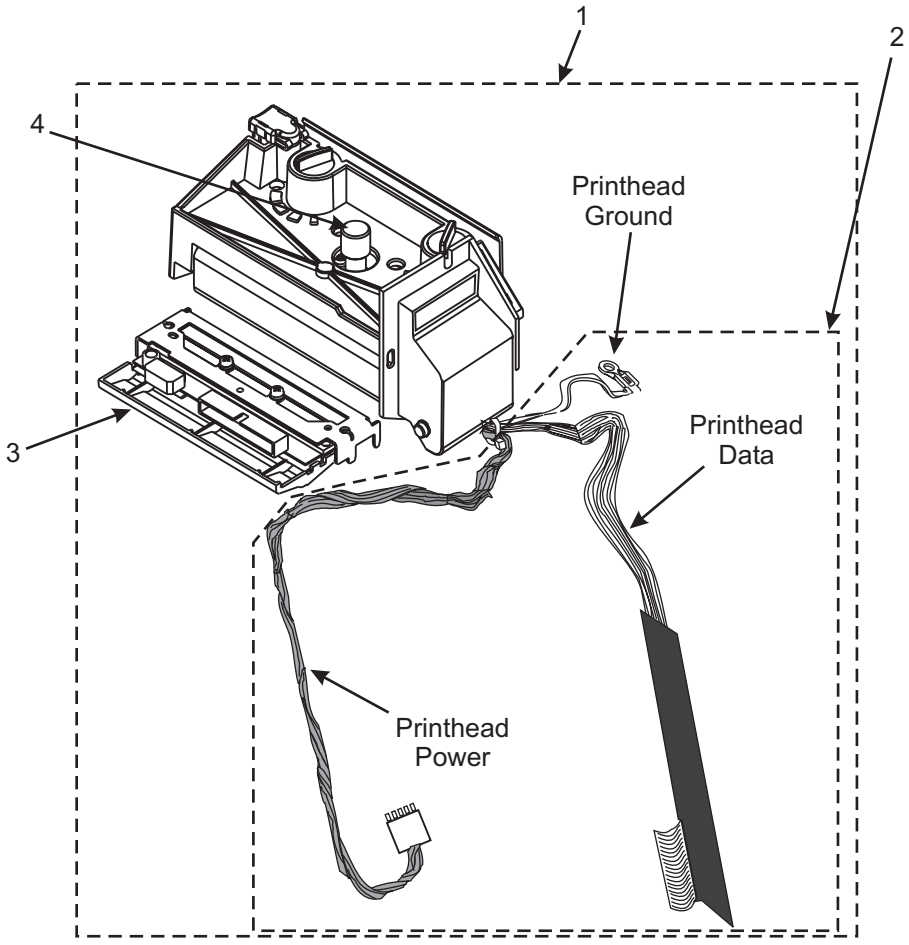

Figure 5-6. Printhead Housing Maintenance Kit

Table 5-7. Static Brush Assembly Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
REF	77302M	Kit, Maintenance Static Brush Assembly (*Z*4M)	1
REF	77303M	Kit, Maintenance Static Brush Assembly (*Z*6M)	1
1	††HW10401	. Screw, M3 x 0.5	2
2	10472	. Washer, Star M3	2
3	77318	. Brush, Ribbon Static	1
3	77319	Brush, Ribbon Static	1
4	N/A	. Bracket, Ribbon Static Brush	1
5	*HW77237	. Screw, M4 x 0.7 x 10 mm	2
N/A: Not Available Separately			

*Minimum Quantity of 5
††Minimum Quantity of 50

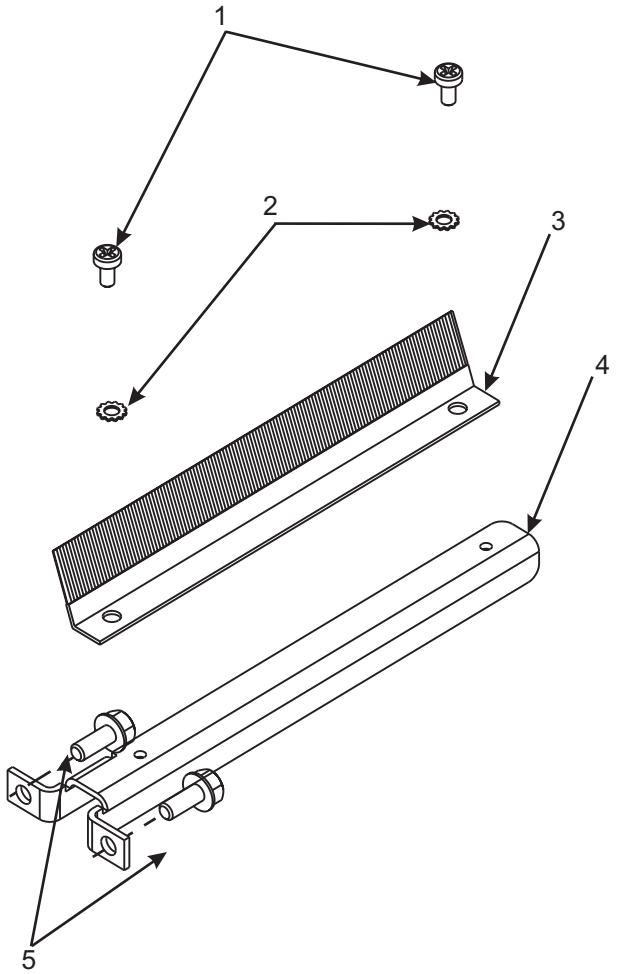

Figure 5-7. Static Brush Assembly Maintenance Kit

Table 5-8. Dancer Assembly Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77331M	Kit, Maintenance Dancer Assembly (*Z*6M) **(Sold as a Complete Assembly only for *Z*6M)**	1
2	77238M	Kit, Maintenance Dancer Assembly (*Z*4M)	1
3	N/A	. Bearing, 0.38 x 0.63 x 0.50	2
4	N/A	. Spring, Torsion	1
5	N/A	. Dancer	1
6	††HW30224	. Ring, External Crescent, 0.375	2
7	N/A	Shaft, Dancer	1
8	†HW44356	Washer, 0.198 x 0.75 x 0.085	1
9	†HW10432	Screw, Cap M4 x 0.7	1
N/A: Not Available Separately			

†Minimum Quantity of 25
††Minimum Quantity of 50

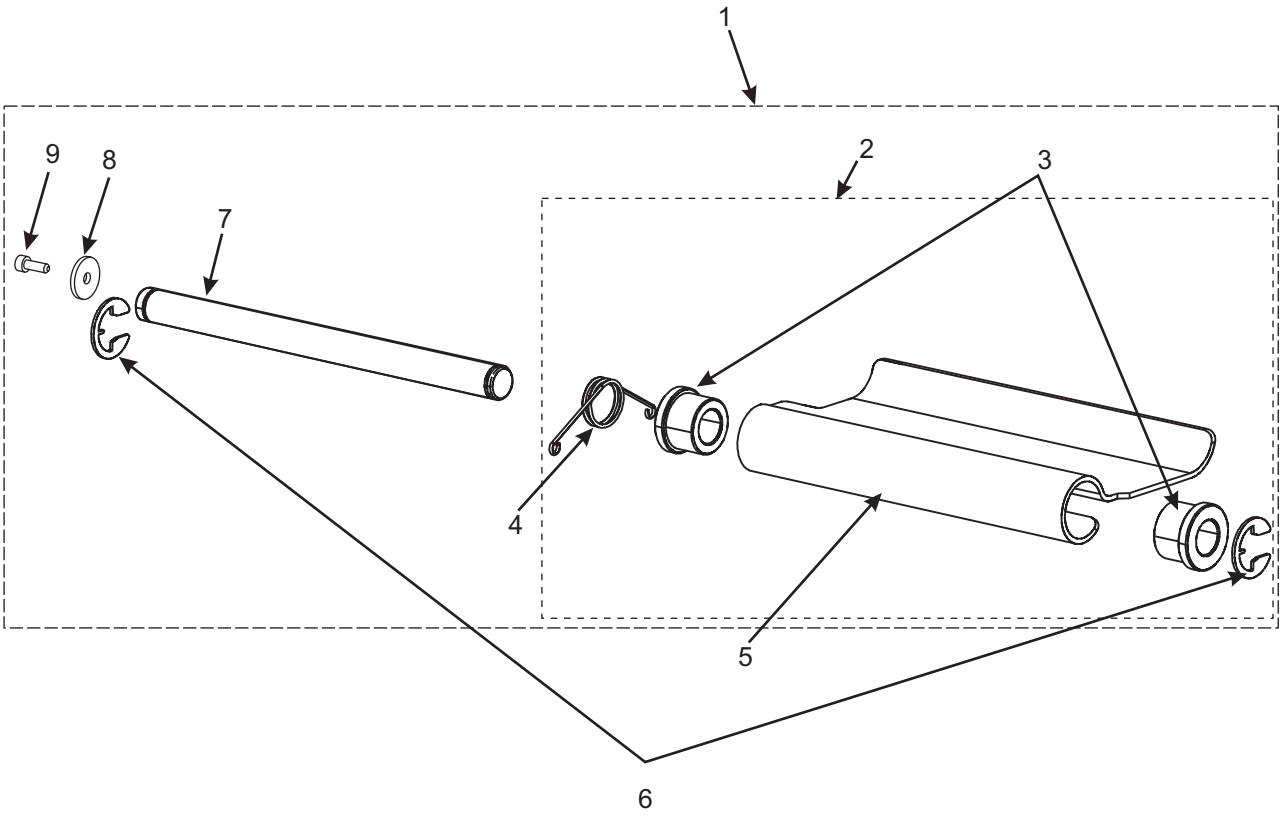

Figure 5-8. Dancer Assembly Maintenance Kit

Table 5-9. Ribbon Supply Assembly Maintenance Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
REF	77085M	Kit, Maintenance Ribbon Supply, *Z*4M	1
REF	77082M	Kit, Maintenance Ribbon Supply, *Z*6M	1
1	†HW10432	Screw, Cap, M4 x 0.7	1
2	†HW44356	Washer, 0.198 x 0.75 x 0.085	1
3	N/A	Shaft, Ribbon Supply	1
4	44390	Washer, 0.500 x 0.377 x 0.020	1
5	††HW30224	Ring, Crescent, Ext.	1
6	N/A	Spindle, Inner	1
7	N/A	Blade, Spindle	2
8	N/A	Spring, Tension	2
9	†HW44147	Screw, Set Cup, M3 x 0.5	4
10	N/A	Cup, Spring Clutch	2
11	††HW10401	Screw, M3 x 0.5	2
12	N/A	Blade	1
13	N/A	Spindle, Inner	1
14	N/A	Spindle, Outer	1
N/A: Not Available Separately			

†Minimum Quantity of 25
††Minimum Quantity of 50

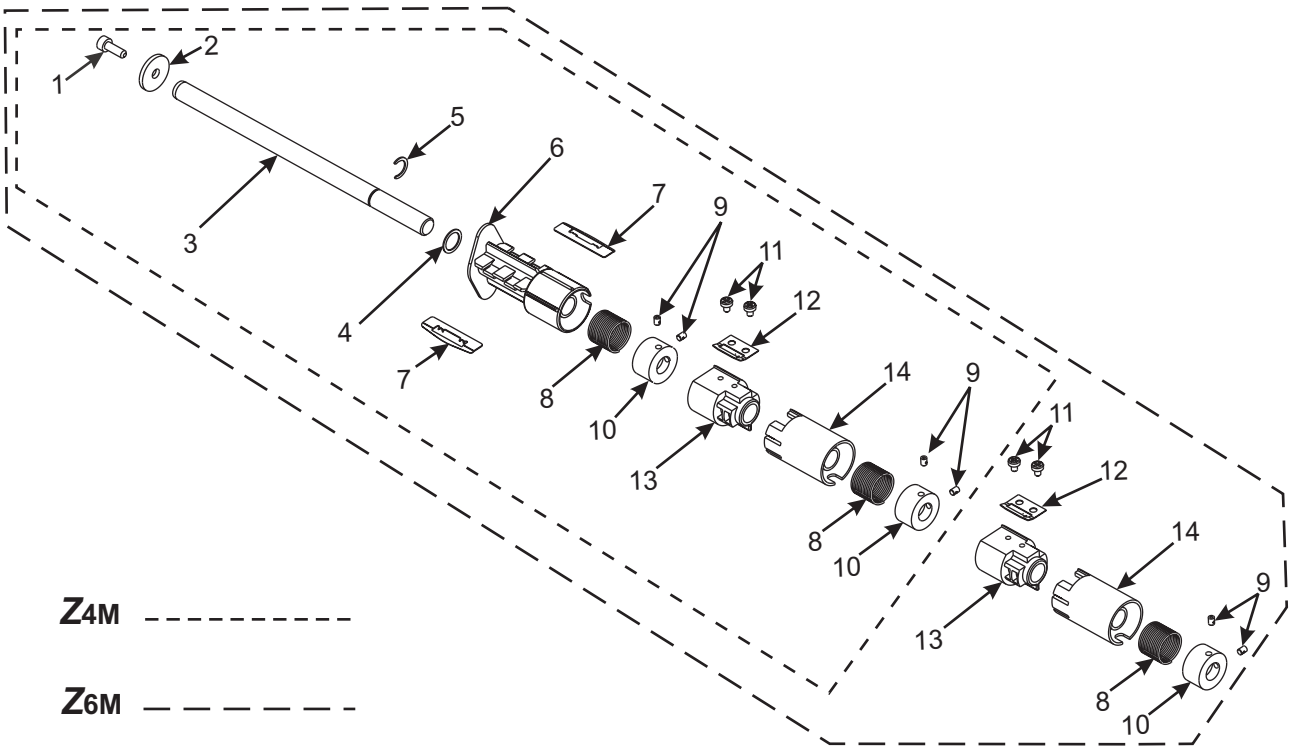

Figure 5-9. Ribbon Supply Maintenance Kit

Table 5-10. Print Mechanism Latch Kit

ITEM	PART NUMBER	DESCRIPTION	QTY
REF	77112M	Kit, Latch Print Mechanism	REF
1	77276	. Cap, Strike Plate	1
2	N/A	. Latch, Strike Plate	1
3	10473	. Washer, Flat M4	1
4	Q10011	. Screw, M4 x 10 Cp Hx H Bo	1
5	*HW77237	. Screw, M4 x 0.7 x 10 mm	1
6	77236	. Cover, Latch Plate	1
7	N/A	. Latch	1
8	N/A	. Spring, Compression	1
9	N/A	. Pin, Slot Spring	1
N/A: Not Available Separately			

*Minimum Quantity of 5

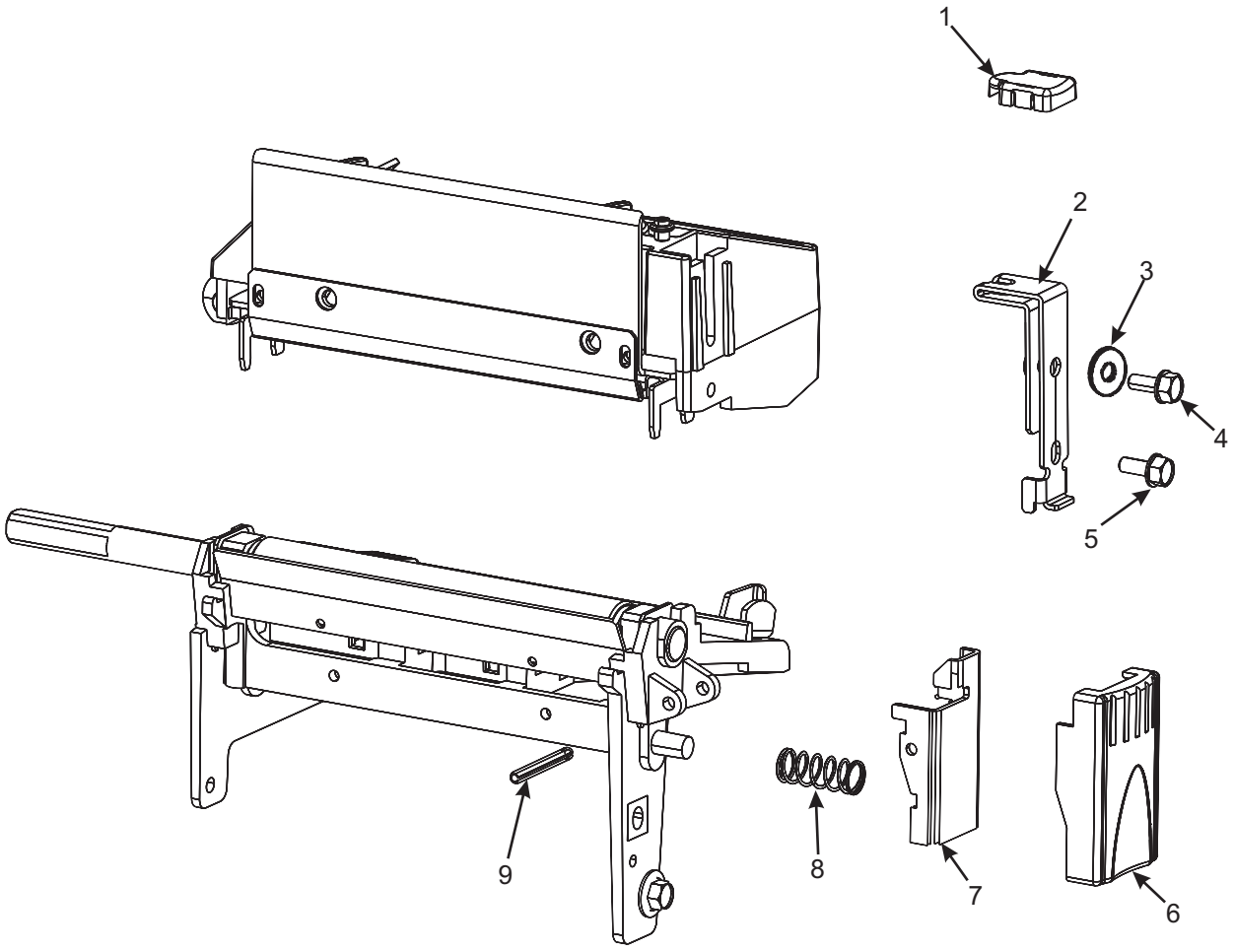

Figure 5-10. Print Mechanism Latch Kit

Table 5-11. Drive System – Belts/Pulleys

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77814M	Kit, Maintenance Clutch Ribbon Take-Up	1
2	N/A	. Hub, Clutch	1
3	N/A	. Gear, Clutch	1
4	N/A	. Bearing, Clutch	1
5	N/A	. Spring, Return	1
6	N/A	Washer, Nylon Flat, 0.375 x 0.75 x 0.062	1
7	N/A	Washer, Flat 0.379 x 0.53 x 0.056	2
8	44118	Collar, Shaft 0.377 x 0.750	1
9	†HW4147	. Screw, Set, M3 X 0.5	2
10	77803M	Kit, Maintenance Drive System	1
11	N/A	. Gear, Compound	1
12	N/A	. Gear, Intermediate	1
13	77396	. Belt, 080P 144Tcndtv PU	1
14	N/A	. Pulley, Compound	1
15	†HW10856	. Screw, Set M4 x 0.7 x 10 mm	2
16	N/A	Nut, Adjusting	1
17	*HW77237	Screw, M4 x 0.7	2
18	†HW10432	Screw, Cap, M4 x 0.7 x 12 mm	1
19	77813M	Kit, Maintenance Stepper Motor	1
20	†HW44924	Screw, M3 x 0.5 x 8 mm	1
21	N/A	Screw, M6 x 20	1
N/A: Not Available Separately			

*Minimum Quantity of 5
††Minimum Quantity of 50

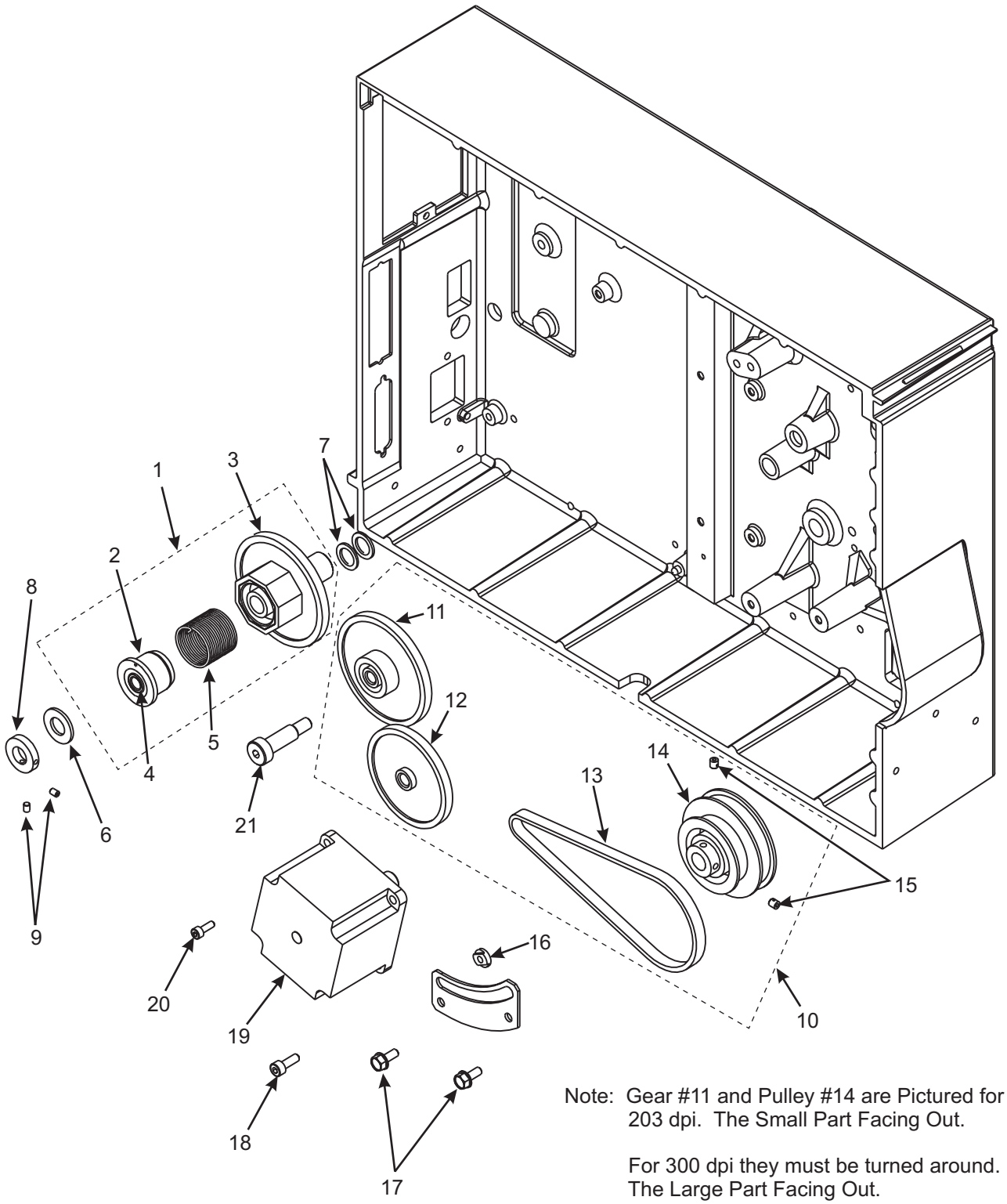

Figure 5-11. Drive System – Belts/Pulleys

Table 5-12. Cutter Kit (Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77971	Kit, Optional Cutter, (*Z*4M)	1
1	77972	Kit, Optional Cutter, (*Z*6M)	1
2	77041	. Tray, Catch (*Z*4M)	1
2	77997	. Tray, Catch (*Z*6M)	1
3	77973M	. Cutter Cover and PC Board Assembly (*Z*4M)	1
3	77697	. . Cutter Cover (*Z*4M)	1
3	77974M	. Cutter Cover and PC Board Assembly (*Z*6M)	1
3	77698	. Cutter Cover (*Z*6M)	1
4	77990M	. Kit, Module Cutter (*Z*4M)	1
4	77401M	. Kit, Module Cutter (*Z*6M)	1
5	N/A	. Screw, M3	2
6	77630	. Cable, Cutter	1
7	77427	. Screw, Socket Head M4 x 10	1
8	77408	. Static Brush, Cutter (*Z*4M)	1
8	77409	. Static Brush, Cutter (*Z*6M)	1
N/A: Not Available Separately			

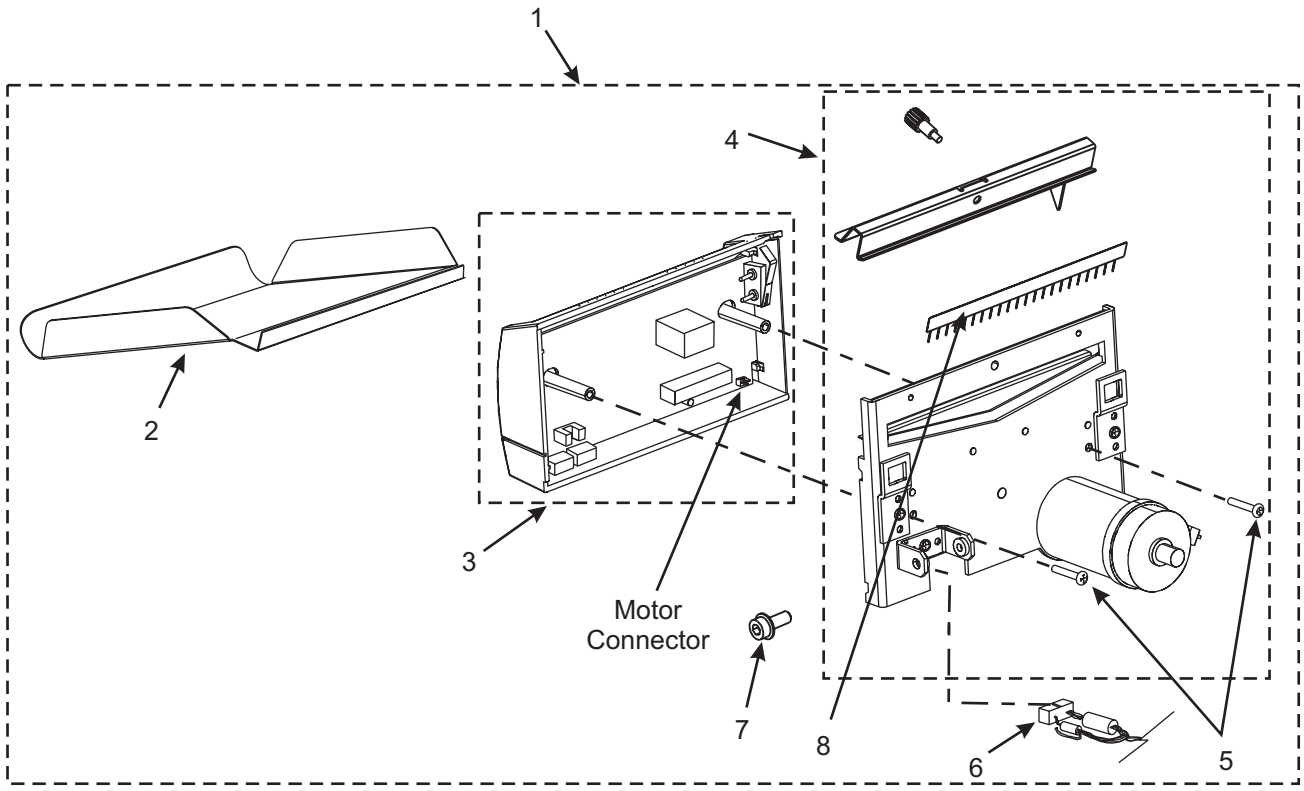

Figure 5-12. Cutter Kit (Optional)

Table 5-13. Value Peel Assembly (Optional)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	78002M	Kit, Maintenance Value Peel, *Z*4M	1
1	78002-6M	Kit, Maintenance Value Peel, *Z*6M	1
2	77231	. Screw, M3 x 8 mm	2
3	77197M	Kit, Maintenance Value Peel Pinch Roller, *Z*4M	1
3	77727M	Kit, Maintenance Value Peel Pinch Roller, *Z*6M	1
4	10094	. E-Ring, 3 mm	2
5	N/A	. Bearing	2
6	N/A	. Roller, Pinch	1
N/S	77222	. Brush, Value Peel Static *Z*4M	1
N/S	77738	. Brush, Value Peel Static *Z*6M	1
N/S: Not Shown			

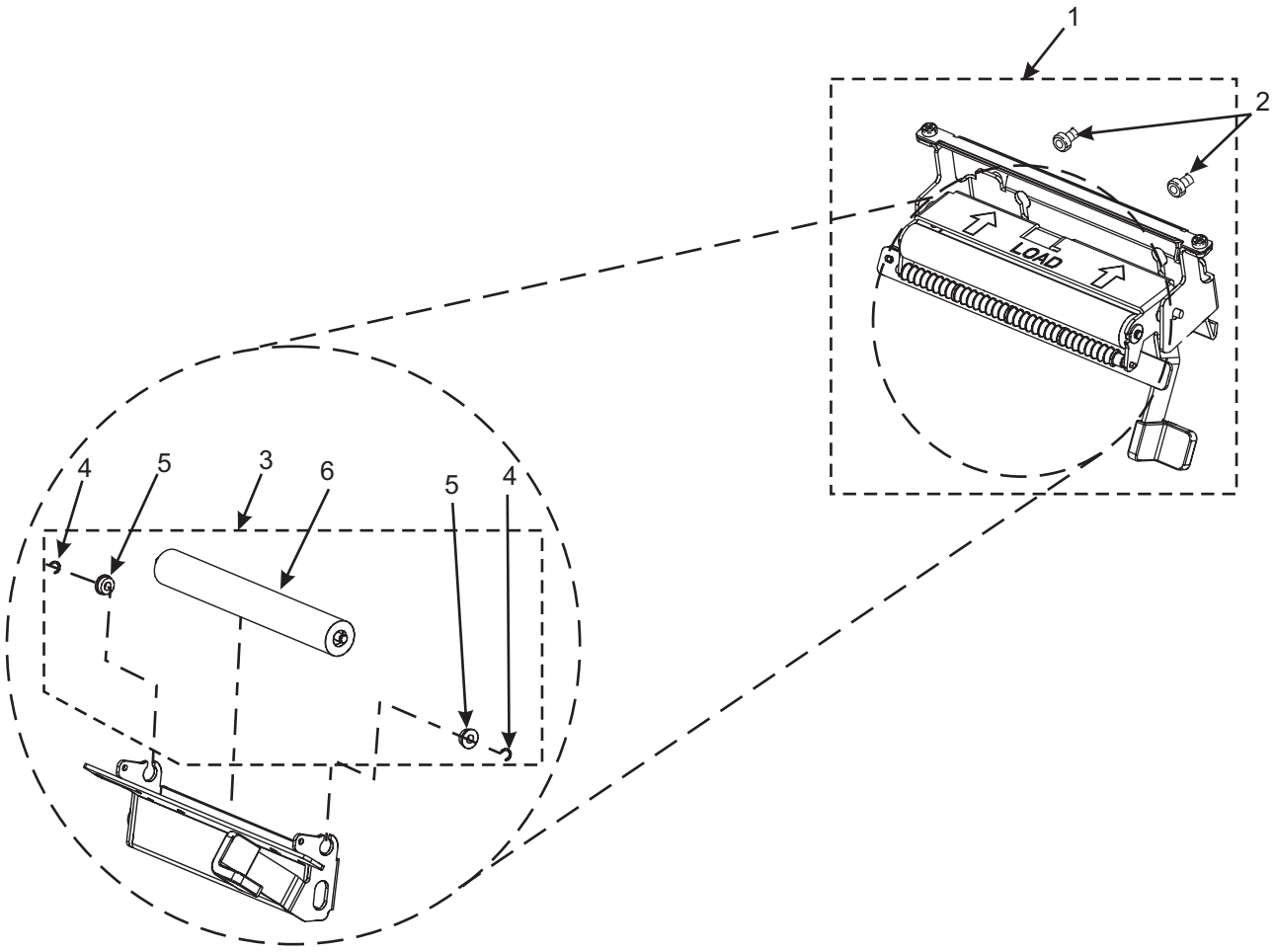

Figure 5-13. Value Peel Assembly

Table 5-14. Liner Take-up Assembly (*Z*4M Only)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77347M	Kit, *Z*4M Liner Take-up	1
2	77648	. Cable, Motor	1
3	*HW77237	. Screw, M4 x 10 mm	2
4	06313	. E-ring	1

*Minimum Quantity of 5

NOTE: The Liner Take-up is Only Available for the Z4M!!!

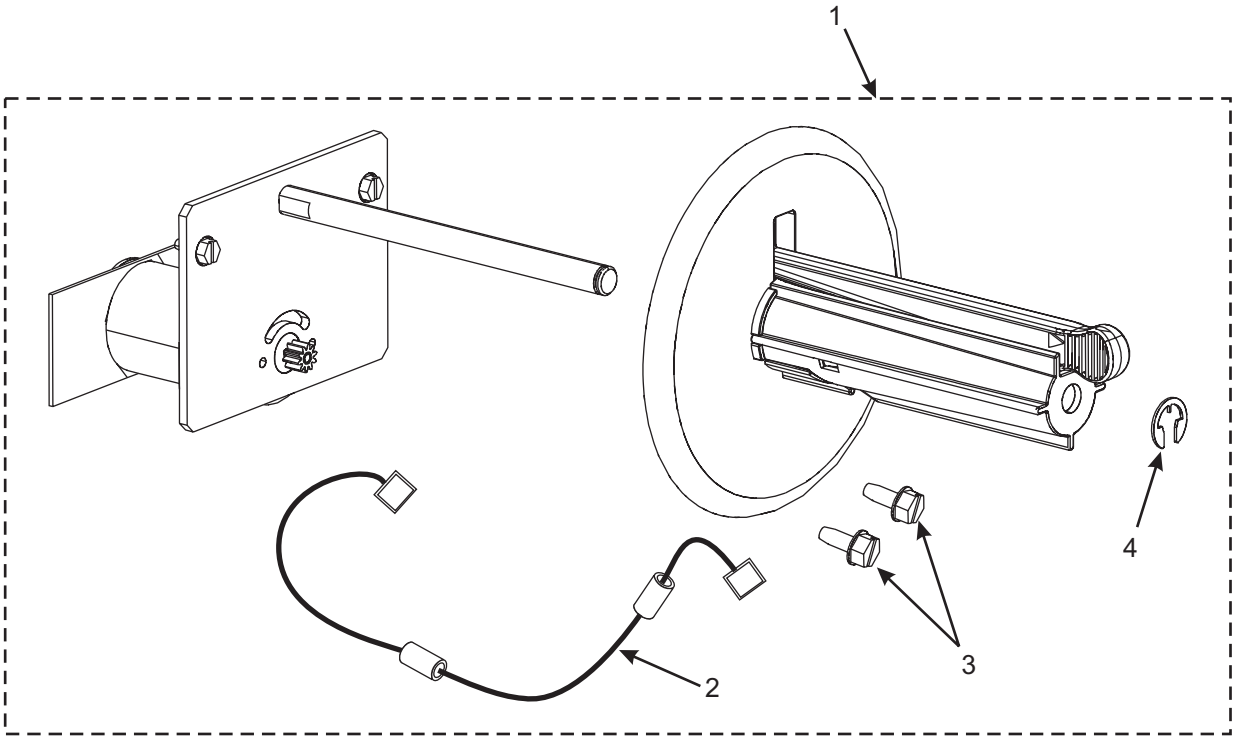

Figure 5-14. Liner Take-up Assembly (*Z*4M Only)

Table 5-15. Power Rewind/Peel (Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	77058	Kit, Power Rewind/Peel, *Z*4M	1
1	77059	Kit, Power Rewind/Peel, *Z*6M	1
2	77498M	. Kit, Maintenance Motor/Spindle *Z*4M	1
3	77898M	. Kit, Maintenance Motor/Spindle *Z*6M	1
3	77740M	. Kit, Maintenance PCB DC Motor	1
4	77648M	. Cable, Media Rewind	1
5	Q06020	. . Cable Tie 0.09 W x 3.63 L	1
6	77247M	. Kit, Maintenance Power Peel, *Z*4M	1
6	77257M	. Kit, Maintenance Power Peel, *Z*6M	1
7	*HW77237	. Screw, M4 x 0.7 x 10 mm	8
8	N/A	. Pan	1
N/A: Not Available Separately			

*Minimum Quantity of 5

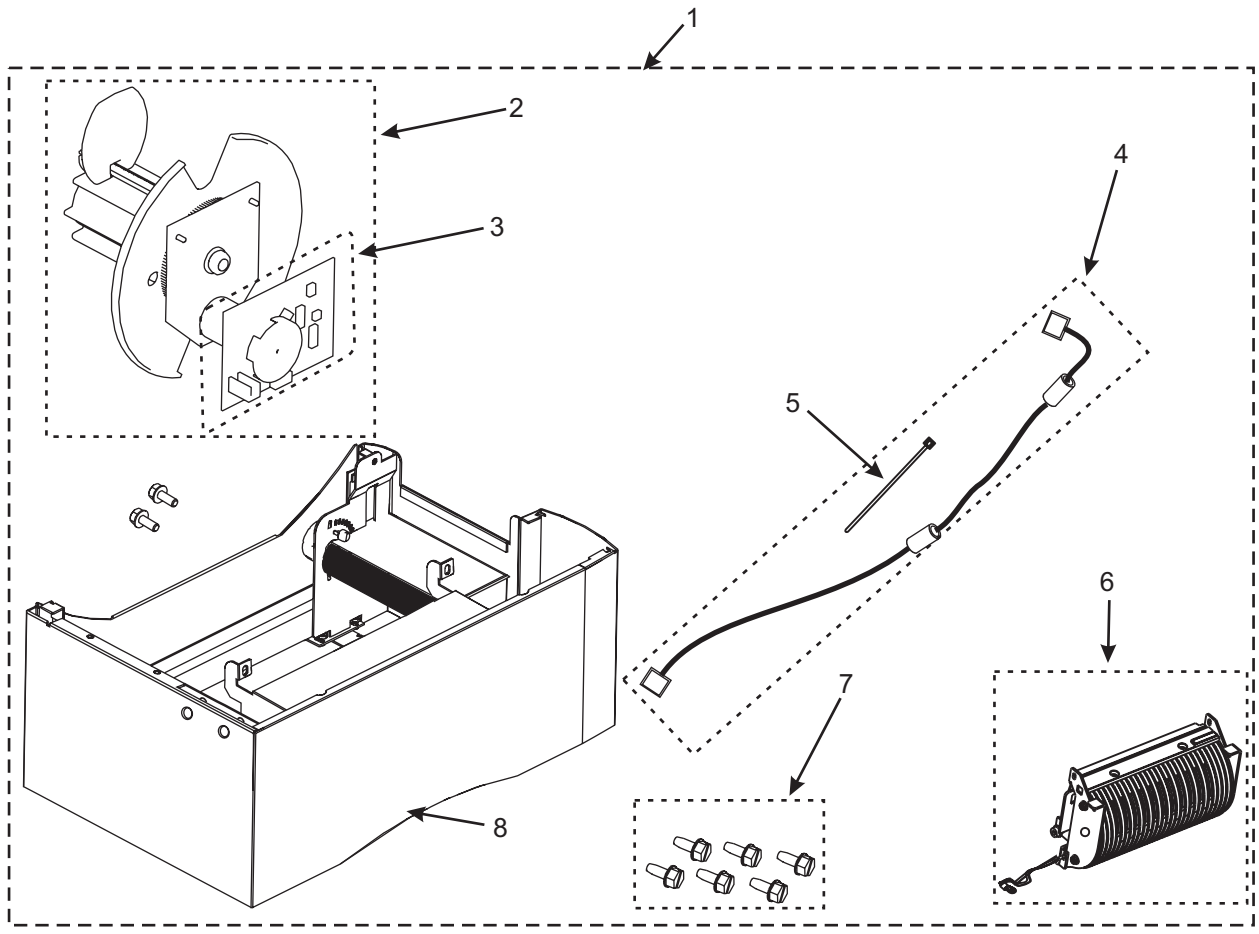

Figure 5-15. Power Rewind/Peel Option

Table 5-16. Value Peel Rewind Kit (Released in Fourth Quarter 2001)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	78005	Kit, Rewind/Peel, *Z*4M	1
1	**Factory Install Only**	Kit, Power Rewind/Peel, *Z*6M	1
2	78007M	. Kit, Maintenance Motor/Spindle *Z*4M	1
3	78007-6M	. Kit, Maintenance Motor/Spindle *Z*6M	1
3	78010M	. Kit, Maintenance Value Peel Rewind PCB	1
4	77648M	. Cable, Media Rewind	1
5	Q06020	. . Cable Tie 0.09 W x 3.63 L	1
6	78002	. Kit, Peel, *Z*4M	1
7	78002-6	. Kit, Peel, *Z*6M	1
8	*HWW77237	. Screw, M4 x 0.7 x 10 mm	8
9	N/A	. Pan	1
N/A: Not Available Separately			

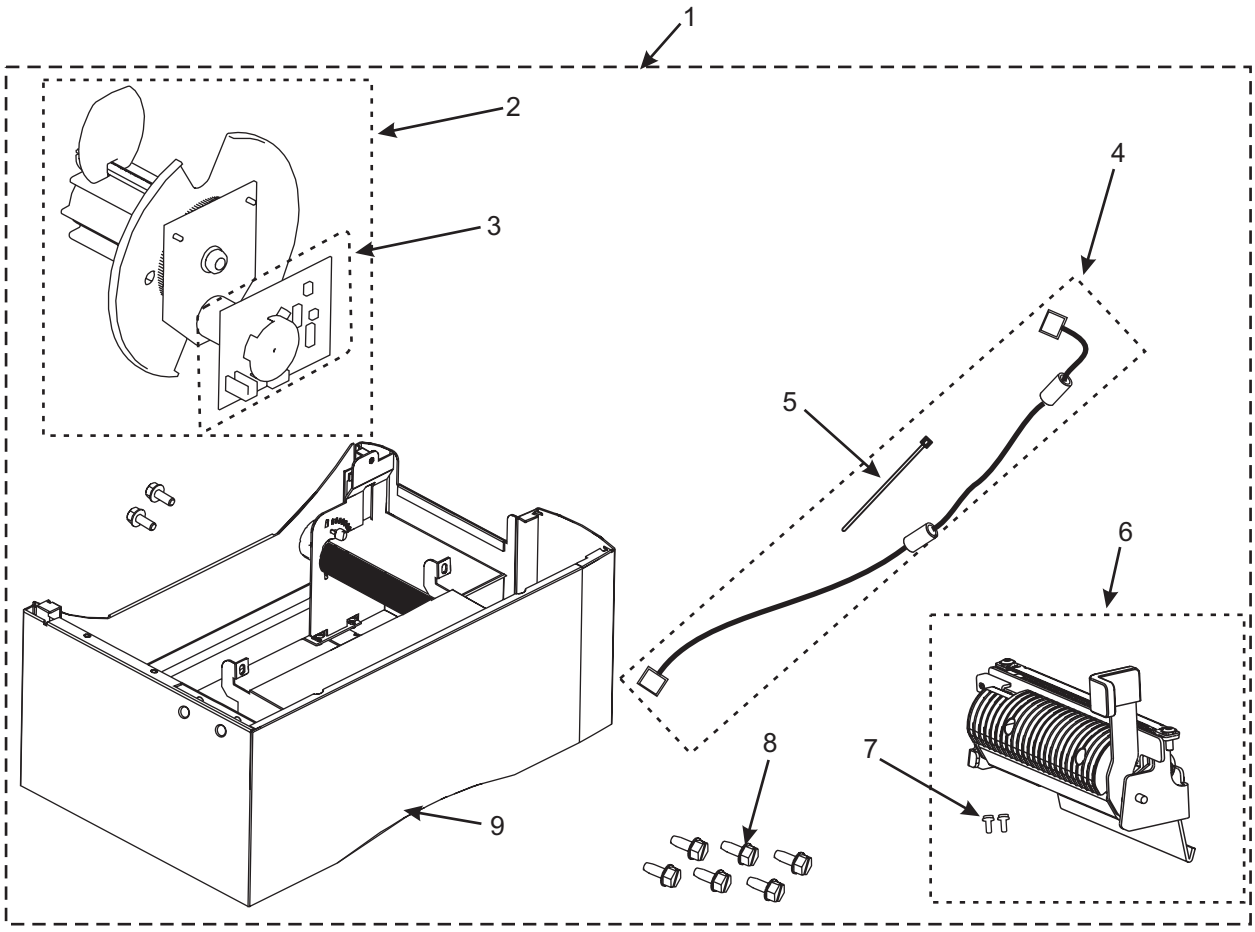

Figure 5-16. Value Peel Rewind Kit

Table 5-17. Miscellaneous Options

Item	Part Number	Description	Qty
1	48924	Kit, Field Upgrade IBM Twinax	1
2	48752	. Assembly, PCB IBM Twinax	1
3	30757	. AP Cable, Ribbon 40 Option Signal	1
4	30753	. Assembly, Cable IBM Twinax	1
5	48925	Kit, Field Upgrade IBM Coax	1
6	48761	. Assembly, PCB IBM Coax	1
7	30757	. AP Cable, Ribbon 40 Option Signal	1
8	48753	. Cable, Coax Ext. IBM	1
9	46692	Kit, Upgrade ZebraNet II External	1
10	46689	Kit, Upgrade ZebraNet II Internal	1
11	—	. PA Cable, Internal	1
12	46709	. PA Cable Tape ZebraNet II	1
13	47210	. Grommet, Strip 2-1/8	1
14	46686	. PA 10 Base T Web Internal	1
N/S	77823	Kit, Upgrade 300 dpi Z4M	
N/S	77824	Kit, Upgrade 203 dpi Z4M	
N/S	77978	Kit, Upgrade 203 dpi Z6M	
N/S	77978	Kit, Upgrade 300 dpi Z6M	
N/S: Not Shown			

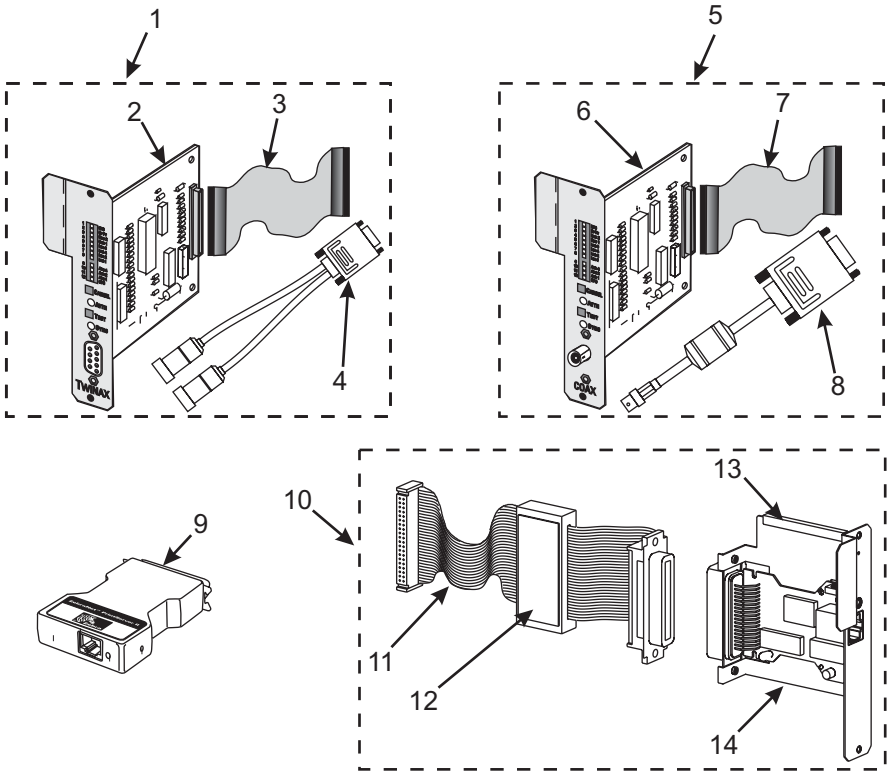

Figure 5-17. Miscellaneous Options


Zebra